

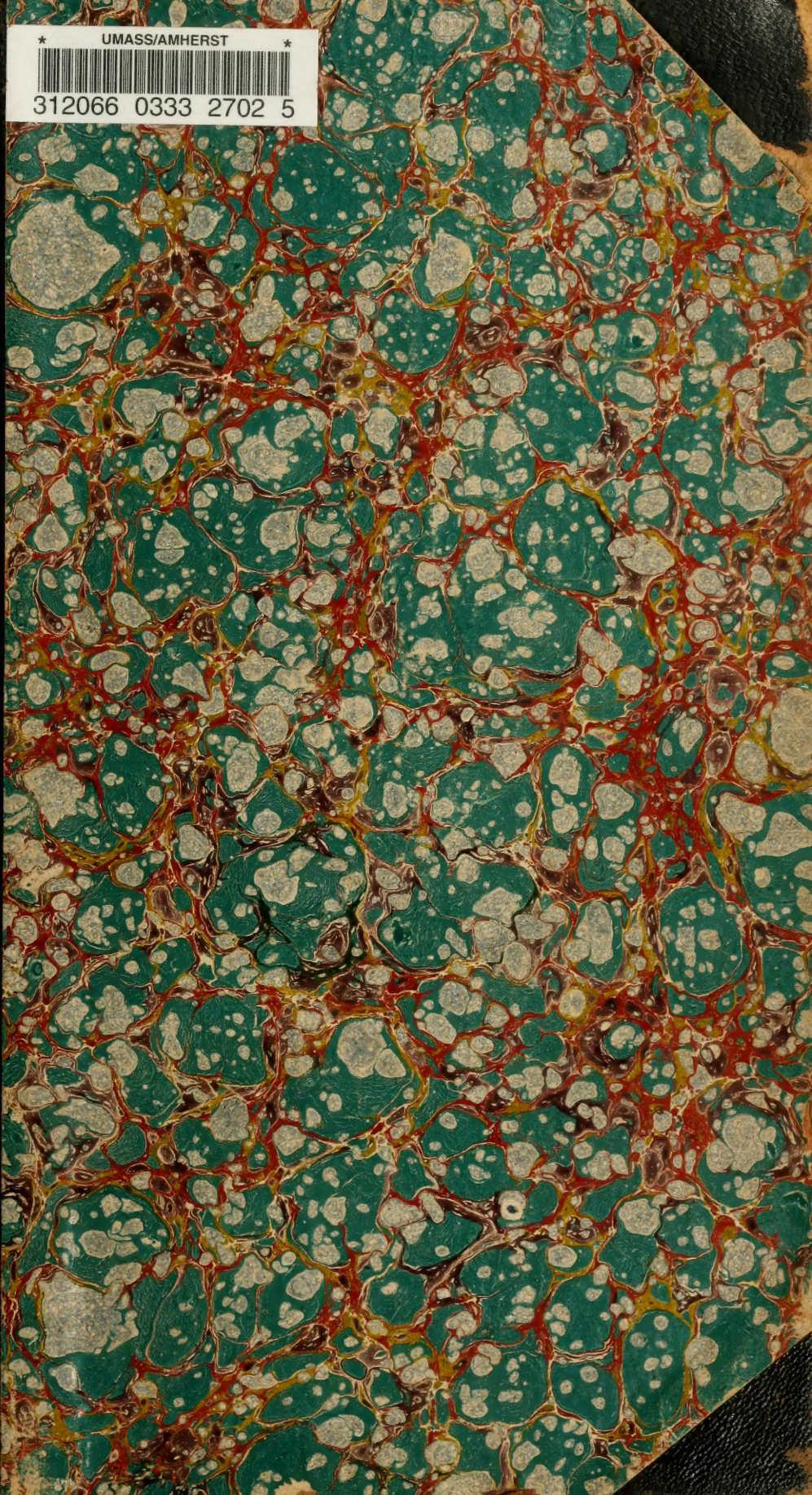
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VOL. XV. NO. 1.

JAN. 1, 1887.

PEACE ON EARTH
GOD WILL FURNISH IT



For Sale
at
the
Post
Office

CLEANING IN BEE CULTURE

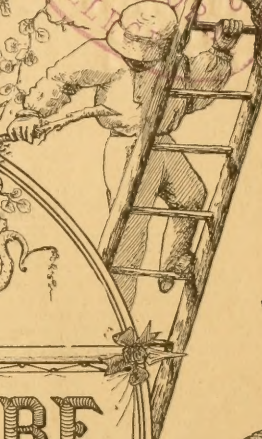
DEVOTED
TO
THE
BEEKEEPER

& HOME INTERESTS.

MEDINA, OHIO
BY
A. ROOT

TERMS, ONE DOLLAR PER YEAR.

MASSACHUSETTS
AGRICULTURAL
COLLEGE



ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions, 20 per cent; 24 insertions, 25 per cent.

On 50 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, 25 per cent; 24 insertions, 33½ per cent.

On 100 lines (whole column) and upward, 1 insertion, 10 per cent; 3 insertions, 15 per cent; 6 insertions, 20 per cent; 9 insertions, 25 per cent; 12 insertions, 33½ per cent; 24 insertions, 40 per cent.

On 200 lines (whole page), 1 insertion, 15 per cent; 3 insertions, 20 per cent; 6 insertions, 25 per cent; 9 insertions, 30 per cent; 12 insertions, 40 per cent; 24 insertions, 50 per cent.

An additional discount of 10 per cent, where *electro-types* are furnished. A. I. ROOT.

CLUBBING LIST.

We will send GLEANINGS—
With the American Bee-Journal, W'y (\$1.00) \$1.75
With the Bee-keepers' Magazine, (25) 1.25
With the Canadian Bee-Journal, W'y (1.00) 1.80
With all of the above journals, 3.25

With American Agriculturist,	(\$1.50)	2.25
With American Apiculturist,	(\$1.00)	1.75
With American Garden,	(\$2.00)	2.25
With the British Bee-Journal,	(2.00)	2.90
The Bee Hive,	(30)	1.20
With Prairie Farmer,	(1.50)	2.35
With Rural New-Yorker,	(2.00)	2.90
With Scientific American,	(3.20)	3.50
With Ohio Farmer,	(1.00)	1.90
With Popular Gardening,	(1.00)	1.75
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(2.00)	2.25

[Above Rates include all Postage in U. S. and Canada.]

Untested Queens Ready to Mail ALL WINTER LONG.

I have now on hand untested queens ready to send out by first mail. In regard to my responsibility, I would refer you to A. I. Root, with whom I received instruction in bee culture. The friends who order these queens during the winter time are expected to have sufficient experience to take care of them when they are received at the postoffice. In the Southern States, where the winters are so mild the bees can fly almost all winter long, of course there will be little more difficulty in receiving them in the winter months than at any other time.

N. ADAMS,
Sorrento, Orange Co., Fla.

A Complete Business Outfit.

I have for sale two 8x12 printing-presses—one of them foot-power; 50 fonts of type, many of them full printer's fonts; regular cases, leads, furniture, etc., sufficient to do a large job-printing business. Cost me about \$300. I offer the whole for \$125, having other business to take my time.

24-1d

W. EARLE CASS,
Roseland, Essex Co., N. J.

FLAT - BOTTOM COMB FOUNDATION.

High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS.

5ftd Sole Manufacturers,
SPROUT BROOK, MONT. CO., N. Y.



Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	1tf
*Paul L. Viallon, Bayou Goula, La.	19td
*S. F. Newman, Norwalk, Huron Co., O.	19td
*D. G. Edmiston, Adrian, Len. Co., Mich.	19td
*S. G. Wood, Birmingham, Jeff. Co., Ala.	19td
*E. Kretschmer, Coburg, Mont. Co., Iowa.	19td
*Jos. Byrne, Ward's Creek, East Baton Rouge	
	19td Par., La.

J. W. Winder, Carrollton, Jeff. Par.,	
	New Orleans, La. 3ftd
*E. Burke, Vincennes, Knox Co., Ind.	3-1
C. C. Vaughn, Columbia, Tenn.	15td
	Bloomington, Ill. 15td
J. B. Hains, Bedford, Cuyahoga Co., O.	15td

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
P. L. Viallon, Bayou Goula, Iberville Par., La.	15td
C. W. Costellow, Waterboro, York Co., Me.	1-23
R. B. Leahy, Higginsville, Laf. Co., Mo.	15td
E. Kretschmer, Coburg, Montgomery Co., Ia.	15td
C. P. Bish, St. Joe Station, Butler Co., Pa.	19-23

FOR SALE.—Seed from Echinops Sphaerocephalus, commonly called Chapman Honey-Plant. Price per ½ oz., 75 cts.; 1 oz., \$1.50; 2 oz., \$2.50. Warranted Genuine. Manufacturer of Bee-keepers' Supplies of all kinds; sole right for Shuck hive in Canada. Address
24-1 E. L. GOULD & CO., Brantford, Canada.

FREE. A Niagara vine free to all who purchase vines to the am't of \$2.00, up to March 1st. Catalogue of grapevines free.
24-1-2-3-4d L. L. ESENHOWER & CO., Reading, Pa.

**WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
— FOR PRICES ON —**

**BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers**
New Factory. Low Prices. Good Work.
24-11db

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3ftbd

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CONVENTION NOTICES.

The next meeting of the Sheboygan Co., Wis., Bee-Keepers' Society, will be held at Hingham, Jan. 13, 1887. MRS. H. HILLS.

The bee-keepers of the western part of Ontario, Canada, will hold a convention at Tilbury Center, Jan. 12 and 13, 1887. All are invited to attend. N. SMITH, Sec.

The Annual Convention of the Vermont Bee-Keepers' Association will be held at the Van Ness House, Burlington, Vt., on January 13th and 14th, 1887. A cordial invitation is extended to all, both ladies and gentlemen. R. H. HOLMES, Sec., Shoreham, Vt.

The Ohio Bee-Keepers' Association will hold their annual convention January 11, 12, and 13, 1887, in the parlors of the Farmers' Hotel at Columbus, Ohio, where good accommodations can be had at \$1.00 per day. You are requested to see on hand. C. M. KINGSBURY, Sec.

The Nebraska State Bee-Keepers' Union will hold their next annual Convention at the Red Ribbon Hall, Lincoln, Neb., commencing January 12th, 1887, at 1:30 P. M., and continue three days. All persons interested in the culture of bees and sale of honey are requested to be present. For full particulars address H. N. PATTERSON, Sec., Humboldt, Neb.

The Northeastern Ohio, Northern Pennsylvania, and Western New York Bee-Keepers' Association will hold its eighth annual convention in Chapman's Opera House, Andover, Ohio, on Wednesday and Thursday, January 19th and 20th. First-class hotel accommodations at \$1.00 per day to those attending the convention. A general invitation is extended to all. M. E. MASON, Andover, O., C. H. COON, New Lyme, O., Acting Sec. Pres.

The 18th Annual Convention of the New York State Bee-Keepers' Association (formerly the Northeastern), will be held at Agricultural Hall, Albany, N. Y., January 11, 12, and 13, 1887. GEO. H. KNICKERBOCKER, Sec.

PROGRAMME.

FIRST DAY.—TUESDAY, JANUARY 11TH.

Called to order at 2 P. M.—Reading the minutes of last meeting.—Receiving members and collecting dues.—Reports of Secretary, Treasurer, and Standing Committee.

DISCUSSION.—Alsike Clover as a Honey-plant, and its Relative Value to Other Clovers as Feed for Stock: Led by C. M. Goodspeed, Thorn Hill, N. Y.—DISCOURSE on the Chapman Honey-Plant, by H. Chapman, Versailles, N. Y.

EVENING SESSION, 7 P. M.

DISCUSSION.—Rendering Old Comb into Wax: Led by Ira Barber.—ESSAYS.—EXTENDED HONEY: Its Relative Value in Comb Honey, by Dadant & Son, Hamilton, Ill.—The Middleman in the Wholesale Market, by C. F. Muth, Cincinnati, O.

SECOND DAY.—WEDNESDAY, JANUARY 12TH.

Called to order at 9 A. M.—Receiving Members.—Appointment of Committees.

DISCUSSIONS.—1. Cause of the Late Depression of the Honey-Market: Led by L. C. Root, Mohawk, N. Y.—2. Bee-keeping by Women, as an Occupation: Led by Mrs. L. M. Thomas, Tacony, Pa.—3. Bee-Journals and the Supply Trade: Led by John Aspinwall, Barrytown, N. Y.

AFTERNOON SESSION, 1 P. M.

Receiving New Members.—Election of Officers.—President's Annual Address.

DISCUSSION.—1. Scientific Ventilation of Bees in Winter Repositories: Led by P. H. Ellwood, Starkville, N. Y.—2. Overstocking the Honey Market: Led by Capt. J. E. Hetherington, Cherry Valley, N. Y.—Discussion of questions from Question-Box.

EVENING SESSION, 7 P. M.

DISCUSSIONS.—1. The Outlook of Bee-keeping in the Future: Led by A. E. Manum, Bristol, Vt.—2. Foreign Honey for North America: Led by S. T. Pettit, of Canada.—Discussion of special questions handed in by members.

THIRD DAY.—THURSDAY, JANUARY 13TH.

MORNING SESSION, 9 A. M.

DISCUSSIONS.—1. Conventions as a Means of Promoting the Financial Welfare of the Bee-keepers: Led by essay from Jas. Heddon, Dowagiac, Mich.—2. SEPARATORS: Led by N. N. Betzinger, Marcellus, N. Y.—3. Bee-keeping as a Science: Led by Arthur Todd, Phila., Pa.—Answering questions from the Box.

AFTERNOON SESSION, 1 P. M.

DISCUSSIONS.—1. The Advantages and Disadvantages of Patent-Rights to Bee-keepers: Led by G. M. Doolittle, Borodino, N. Y.—2. The Bee-hive for the Future: Led by R. F. Holtermann, of Canada.

Reports of Committees.—Miscellaneous Business.—Adjournment.

The Headquarters of the Convention will be at the Globe Hotel, State St., Corner Pearl. Board \$2.00 per day.—Board at the Kimball House, No. 69 Washington Ave., \$1.00 per day.

Persons desiring to secure board will please write to John Aspinwall, Barrytown, N. Y., who has the matter in charge.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say where you want your ad in the department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for cash, or good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city. 20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

I HAVE about 5 lbs. of spider-plant seed. I will exchange the same for different kinds of flower-seed or plants of any sort that are useful and ornamental. J. W. ROSS, 23-24-1-2d Phair, Brazoria Co., Texas.

WANTED.—A foundation-mill, or offers, for a first-class incubator—been used three seasons. 23tfdb D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange 8 vols. "Campaigns of the Civil War" (new) for a good bracket saw or turning-lathe. J. S. MASON, Medina, O.

WANTED.—To exchange nursery stock of all kinds (evergreens a specialty) for pure Italian bees, queens, 2 or 3 frame nuclei, fdn., apiary supplies of all kinds, seedling basswood-trees, a trio of White Leghorn fowls, alsike clover seed. When making inquiries, please give price of your goods. My price list free on application. R. A. LEWIS, Cherokee, Iowa.

THOROUGHbred fowls, Brown Leghorns, S. S. Hamburgs, W. C. B. Polish, P. Rocks and Wyandottes, Bonney's, Forbes', Hawkins', Wilcox & Fultz' strains. We will sell for cash, or exchange for fdn. and beeswax. Price list free. 18-19tfdb A. H. DUFF, Creighton, Ohio.

WANTED to exchange or sell, a Given fdn. press, 3 tanks, and ½ doz. dipping-boards. 1tfdb J. SWALLOW, 2816 Mo. Ave., St. Louis, Mo.

WANTED to exchange, S. B. Leghorns and S. S. Hamburg cocks for comb foundation, or \$1.00 cash; \$2.00 per pair. Address 1-2d L. C. CALVERT, Poplar Flat, Lewis Co., Ky.

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

IMPORTED QUEENS.

In April.....	11 francs in gold.
May and June.....	10 " " "
July and August.....	9 " " "
September and October.....	7 " " "

No orders received for less than 8 queens. Queens which die in transit will be replaced only if sent back in a letter. CHARLES BIANCONINI & Co., 1-11d Bologna, Italy.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

Seeds for the Garden and Greenhouse for 1887.

As a number of the friends in the South are now sending in their orders for seeds, it reminds us that it is time to indicate our preferences, and to let you know what we feel like advising and offering for sale the coming year.

PRICE 5 CTS. PER PAPER; 10 PAPERS, 40 CTS.; 100 PAPERS, \$3.50.

Seeds of new or rare vegetables and novelties, we include at the uniform price of 5 cents per package; but, of course, we are obliged to put a smaller number of seeds into such packages. This will be noticed with the *White-Plume Celery* and *Snowball Cauliflower*, etc. Now, these 5-cent papers are all sent by mail postpaid; but when you order seeds BY THE OUNCE OR POUND, you must pay 2c extra for postage and packing on each and every ounce, and 18c extra for postage and packing on each and every pound of seeds ordered. You will notice from this, that the FIVE-CENT PACKETS, POSTPAID BY MAIL, never contain a FULL OUNCE of any thing.

BEANS.

Landreth's First in the Market. Pt. 20c; pk. \$3.00. The earliest shell beans.

Dwarf German Wax, or Butter Beans. Pt. 10c; pk. \$1.50. The earliest snap-short variety.

Golden Wax. Pt. 10c; pk. \$1.50.

A staple snap-short bean.

Southern Prolific. Pt. 15c; pk. \$2.25.

The best snap-short pole bean, maturing in 70 days.

Large Lima. Pt. 15c; pk. \$2.00.

The above beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 15c per pint for postage.

BEETS.

Eclipse. Oz. 10c; lb. 75c.

This gave us the best satisfaction last season of any thing we ever raised in the way of beets. They are a very quick grower, of excellent quality, and the appearance of the bright smooth scarlet bulbs is fully equal to any thing that has been pictured in the colored plates of our catalogues. In order to get a fancy price for them, start them in the greenhouse, and transplant when of the size of peas, or a little larger. They bear transplanting well, and are exceedingly hardy.

Philadelphia Turnip. Oz. 5c; lb. 50c.

This is a little later and larger than the above, and is a novelty because of its alternate rings of dark and light pink.

Long Blood Red. Oz. 5c; lb. 50c.

An old standard variety.

CABBAGE.

Select, Very Early Jersey Wakefield.

Oz. 25c; lb. \$3.00.

Our cabbage seed this year is raised by Francis Brill. At the Experimental College Farm, at Columbus, O., they give his cabbage seed the preference over that raised by any other seedsmen, and they have tested nearly all of them. They all say that the Early Jersey Wakefield, of their best selected strain, is fully as early as any other cabbage known, and greatly superior in quality. We sold single heads last season at retail at 30c each, raised from plants started in the greenhouse in February.

Henderson's Early Summer. Oz. 25c; lb. \$3.00.

This comes next to the Jersey Wakefield; and although it is an early cabbage, under very favorable conditions it produces large heads of most excellent quality.

Winningsstadt. Oz. 10c; lb. \$1.50.

Much like the Jersey Wakefield, but later and larger. The heads are round, and some of them are so hard as to seem almost like bullets. Our customers of last season greatly preferred these and Henderson's Early Summer cabbage to the later flat cabbages.

Flat Dutch. Oz. 10c; lb. \$1.50.

This is a standard late cabbage, for winter.

Stone Mason. Oz. 15c; lb. \$2.25.

Another standard variety, but, as its name implies, it produces harder heads than the Flat Dutch.

Perfection Drumhead Savoy. Oz. 10c; lb. \$1.50.

The Savoy cabbage is handsome in appearance, and richer and finer in quality, than any of the other varieties. In taste it nearly approaches the cauliflower.

Large Red Drumhead. Oz. 10c; lb. \$1.50.

This is a red cabbage for pickling. The bright red, by way of contrast, will make a load or lot of cabbages attract attention, and there is always more or less demand for red cabbage for pickles.

CARROTS.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.

CAULIFLOWER.

Brill's Early Snowball. $\frac{1}{4}$ Oz. \$1.00; oz. \$3.00.

Nice specimens of early cauliflower often bring extravagant prices, and it pays well to start them in the greenhouse, and use hand-glasses to forward them before the hot weather comes on.

CELERY.

Henderson's White Plume. $\frac{1}{4}$ Oz. 15c; oz. 50.

We place this at the head of the list, and especially for early celery. During the past season we had fine stalks on the market in July, and it sold readily at 10c each. We are planning to have celery this year in the market in the month of June. The seed was started in the greenhouse about the middle of December. On account of its self-bleaching qualities it is better fitted for early celery than any other.

Golden Dwarf. Oz. 20c; lb. \$2.50.

One of the standard sorts for a later crop. The golden tint of the head stalks makes it a very handsome vegetable.

Boston Market. Oz. 20c; lb. \$2.50.

An old standard variety in and around Boston, and raised largely throughout the land.

Major Clark's Pink. Oz. 25c; lb. \$3.00.

While the White Plume is the earliest and finest in appearance, we regard the above as the richest and most toothsome of all the celeries. It also, under favorable circumstances, makes exceedingly rapid growth. Plants set in September, the past season, made stalks weighing 2 lbs. each, by the middle of November.

CORN (FOR TABLE USE).

Ford's Early Sweet.

We put this at the head of the list on account of its excellent quality and exceeding earliness.

Crosby's Extra Early.

This is a great yielder, with soil suitable, although it comes a little later than Ford's.

Extra Early Minnesota.

One of the standard sorts.

Late Mammoth Sugar.

This is excellent in quality, and gives ears of mammoth size, and is a wonderful yielder. Our trade has been so large in this kind of corn for eight or ten years past, that we have now thirty or forty bushels dried on the husks by steam heat.

Corn we sell at 5 cents for a half-pint package; but at this price purchasers must pay the postage, which is 7 cents for each half-pint. If wanted in larger quantities the price will be \$1.00 per peck, or \$3.50 per bushel.

CRESS, OR PEPPER GRASS.

Extra Curled. Oz. 5c; lb. 50c.

CUCUMBER.

Early Frame. Oz. 5c; lb. 50c.

The earliest cucumber.

Rawson's Improved Early White Spine.

Oz. 50c; lb. \$3.00.

This is the kind he uses for raising in his greenhouse, and the cucumbers bring 50 to 75 cents each, even where he raises them by the thousands. Fine specimens are wonderfully handsome, and taking, and they sometimes grow to a great size without getting yellow.

Short Prolific Pickle. Oz. 10c; lb. \$1.00.

This is the kind generally used for raising pickles for market.

KOHLRABI.

White Vienna. Oz. 20c; lb. \$2.50.

This is a quick-growing vegetable, half way between turnip and cabbage. If the plants are started in the greenhouse, the vegetable may be put on the market at the same time with the very earliest cabbages; and where people once get a taste of it, it is pretty sure to meet with a rapid sale at good prices.

LETTUCE.

Landreth's Forcing. Oz. 40c; lb. \$5.00.

Excellent for hot-beds and cold-frames; exceedingly early. The heads are small, and may be sent to the table in their entire form, on the root.

Boston Market. Oz. 10c; lb. \$1.50.

The best variety for greenhouse culture, as the heads are small, but compact and handsome.

Bloomsdale Early Summer. Oz. 10c; lb. \$1.50.

Second early; sometimes called, by the Southern friends, "Creole."

Henderson's New York. Oz. 40c; lb. \$5.00.

One of the largest and most beautiful varieties of lettuce known. When grown to perfection on good soil, the inside of the head is white, like a cabbage, and wonderfully crisp and refreshing.

Deacon Lettuce. Oz. 40c; lb. \$5.00.

The variety is highly recommended by the Ohio Experiment Station, and so hardy that we have had good heads of it growing in the open ground as late as the middle of November. It promises to be a great acquisition.

Hanson. Oz. 10c; lb. \$1.50.

An old standard variety, producing heads that sometimes weigh as much as 2 lbs.

Brown Dutch. Oz. 10c; lb. \$1.50.

A variety that always attracts attention, and always sells on a count of the red and bronze colors of the greater part of its foliage. It is a very old variety, and the sight of it often finds a purchaser, because it reminds them so vividly of the days of childhood out on the old farm.

MELONS, MUSK.**Extra Early Citron.** Oz. 10c; lb. \$1.50.

Always profitable because of its extreme earliness.

Cassiday, or Persian Muskmelon. Oz. 5c; lb. 60c.

A standard large variety.

Pine Apple. Oz. 5c; lb. 60.

Excellent in quality, and only medium in size.

Banana. Oz. 20c; lb. \$2.00.

I consider this the best muskmelon it has ever been my fortune to taste. Judging from specimens we had last season. They are long like a rail, or like a banana, if you choose; but the color is strikingly like a banana, and, what is more wonderful still, it has an odor also like the banana. If it should prove true to the specimens we have tasted, I pronounce it a great acquisition.

MELONS, WATER.**Extra Early.** Oz. 5c; lb. 60c.

The quality is very good, but the size is not very large.

Landreth's Boss. Oz. 5c; lb. 60.

A melon that seems to combine many of the good qualities for a large late watermelon than any other.

ONION.**Extra Early Red.** Oz. 20c; lb. \$2.50.

Medium size, red, and an excellent keeper.

Silverskin, or White. Oz. 40c; lb. \$4.00.

A standard variety for pickles, or for handsome bunch onions. Better flavored than the dark-skinned.

Yellow Danvers. Oz. 20c; lb. \$2.50.

A standard yellow variety.

ONION SETS.

We have those of Yellow Danvers and Silverskin.

Prices, 10c per pint; \$1.50 per peck, or \$5.00 per bushel. Large-size sets (often used for pickles), one-half the above prices.

PARSNIP.**Bloomsdale.** Oz. 5c; lb. 40c.

This is the only kind we have, but we consider it equal to any.

PARSLEY.**Fine Curled or Double.** Oz. 5c; lb. 75c.**PEAS.****Landreth's Extra Early.** ½ pt. 5c; pk. \$1.50.

We consider this equal to any for the first peas of the season.

American Wonder. ½ pt. 5c; pk. \$1.50.

This is a cross between the Champion and the Little Gem. The vine grows from 6 to 8 inches high. It is the first to ripen among the green wrinkled sorts. On account of its dwarf habits it can be grown very easily under glass.

Stratagem. Pt. 30c; pk. \$3.00.

This has made its way rapidly in public favor. It is not only of rare excellence in quality, but the pods and peas are so large and fine looking they call attention at once from any thing else in the market. It has given us excellent satisfaction.

Yorkshire Hero. ½ pt. 5c; pk. \$1.50.

A hardy variety, considered by many to be better than the Champion.

Champion of England. ½ pt. 5c; pk. \$1.00; bushel, \$3.50.

So well known as to need no recommendation here.

PEPPERS.**Large Sweet Spanish, Bell Shape.** Oz. 25c; lb. \$3.00. Large red variety for pickles.**Bullnose.** Oz. 25c; lb. \$3.00.

A larger variety than the above, but in every other respect the same.

Cayenne Pepper. Oz. 25c; lb. \$3.00.

Much called for, for seasoning soups, pickles, etc.

Spanish Pepper. Oz. 25c; lb. \$3.00.

A new variety, so large that the natives of warm climates slice them up and fry, as an article of food.

RADISHES.**White-tipped Scarlet Turnip.** Oz. 5c; lb. 60c.

A fancy variety of the scarlet bulb with white bottom; very showy.

Scarlet Turnip-rooted. Oz. 5c; lb. 60c.

Larger and later than the preceding.

Lady Finger. Oz. 10c; lb. \$1.00.

One of the standard long radishes. Sometimes it grows as large as a parsnip, and yet is of excellent quality.

Becker's Chartier Radish. Oz. 15c; lb. \$1.50.

A novelty, and one that has given us the greatest satisfaction; of rapid growth and good size, both at the bottom and top. In favorable soil it will grow to a large size, and still be excellent in quality. The Chartier radish has been to us an acquisition during the past year. They are remarkably ear-tan to make a good bulb.

SALSIFY, OR OYSTER PLANT.

A vegetable that is sure to be called for, where it is once introduced. Oz. 5c; lb. 75c.

SPINACH.**Bloomsdale Extra Curled.** Oz. 5c; lb. 50c.

It combines as many of the good qualities as any other.

SQUASH.**SUMMER VARIETIES.****Early White Bush, or Patty Pan.** Oz. 5c; lb. 60c.

Not surpassed by the Golden Summer Crookneck. One of the old staples.

Golden Summer Crookneck. Oz. 5c; lb. 50c.

The standard summer squash.

WINTER VARIETIES.**Perfect Gem.** Oz. 5c; lb. 50c.

A round squash, about 6 inches in diameter. The quality is excellent, and it will keep till spring.

Hubbard. Oz. 10c; lb. \$1.00.

Too well known to need comment.

Boston Marrow. Oz. 5c; lb. 75c.

An old standard staple, especially in and around Boston.

TOMATO.**Mikado.** Oz. 25c; lb. \$3.50.

This tomato is so distinct from the ordinary sorts that it has a different shaped foliage that can be recognized at once. The tomatoes are of immense size, and the greater part of them smooth; besides, they are about as early as any thing we have. Some of the first last season sold at 8 cents apiece, and it does not take many such to fill a basket.

Acme. Oz. 20c; lb. \$2.00.

Too well known to need comment.

Trophy. Oz. 20c; \$2.50.

A companion to the Acme.

Livingston's Beauty. Oz. 25c; lb. \$3.50.

This is a production of the same Livingston who brought out the Acme, Trophy, Favorite, and Perfection; but he pronounces this superior to them all. The specimens at the Ohio State Fair last season were certainly all that could be desired in the tomato.

Pear-Shaped Tomatoes. Oz. 20c; \$3.00.

These are handsome for pickles and preserves. We have them of two colors—red and yellow. They are immense bearers, and of good quality.

TURNIP.**Early Bloomsdale Red Top.** Oz. 5c; lb. 60c.

One of the best for the first turnip in the market.

White Egg. Oz. 5c; lb. 50c.

Very showy and handsome, as well as quite early. Last season they sold readily for a dollar a bushel in our market as fast as we could get hold of them.

Yellow Aberdeen. Oz. 5c; lb. 50c.

We consider this the best table turnip grown. When cooked it is so yellow that it will sometimes be mistaken for squash.

Bloomsdale Swede. Oz. 5c; lb. 50c.

Perhaps the best of the Rutabaga varieties.

CUTTINGS FOR CONCORD GRAPEVINES.

In trimming our grapevines we had a great number of nice well-ripened woods which we cut up into cuttings with two or more strong buds on each. These are packed in damp sawdust, so as to keep nicely for spring planting. We can send them for 5 c. for 10, 40 c. per 100, or \$2.50 per 1000. If wanted by mail, add 16 cts. per 100 extra for postage. Full instructions for planting them will be furnished with each package. With proper care they will, in two years, furnish such grapevines as we sell for \$6.50 per 100.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—White clover, fancy, 15@16c; fair white-clover, 13@14c; common white-clover, 10@12. Buckwheat, 10@11. *Beeswar*, white, 26@27c; yellow, 22@24c; dark, 20@21.
Dec. 24, 1886. **PANCOAST & GRIFFITHS,**
242 South Front St., Philadelphia, Pa.

St. Louis.—*Honey.*—There is no improvement in the honey-market. Some inquiry from outside parties for round lots, but at lower prices than holders seem willing to accept. Comb honey, 10@13, as to quality and size of package. Extracted, clover, 5@6, fair to choice. Southern strained, 3@4½.
Beeswar, better demand, 21@22, as runs; 22@25 selected.
Dec. 24, 1886. **W. B. WESTCOTT & CO.,**
108 and 110 Market Street.

BOSTON.—*Honey.*—No change in prices; demand fair.
Dec. 24, 1886. **BLAKE & RIPLEY,**
57 Chatham St., Boston, Mass.

CINCINNATI.—*Honey.*—There is a quiet tone prevailing, although demand is fair for choice comb and extracted honey in small packages; manufacturers buy sparingly only. Our city has large supplies of all kinds of honey from both sides of the Rocky Mountains, and still lower prices may be expected just as soon as commission merchants are obliged to realize. The range of prices for extracted honey is 3@7c on arrival. Choice comb honey brings 12@15c in a jobbing way.
Dec. 24, 1886. **CHAS. F. MUTH & SON,**
Cincinnati, Ohio.

CHICAGO.—*Honey.*—Dull; offerings continue to increase, and, in consequence, prices are easy; sales are made in a small way at 10@12c for good comb; 12@13c for selections. Extracted, without sales to quote from. *Beeswar*, 23@25c.
Dec. 23, 1886. **R. A. BURNETT,**
161 So. Water st., Chicago, Ill.

DETROIT.—*Honey.*—The honey in sight is being gradually reduced; still there is a large supply on hand, with no change in prices. Sales of extracted very slow. *Beeswar*, 23c.
Dec. 24, 1886. **M. H. HUNT,**
Bell Branch, Mich.

PHILADELPHIA.—*Honey.*—This is a poor market, owing to the competition of glucose mixtures. White clover sells at 12@14c in glass cases. *Beeswar*, if choice, is worth 24@25c.
Dec. 22, 1886. **SAM'L S. DANIELS,**
Philadelphia, Pa.

CLEVELAND.—*Honey.*—The market is unchanged; choice 1-lb. sections of white sells slowly at 13c; 2-lbs. white, 11@12c. Second quality, 10@11. Extracted, 6c. *Beeswar*, 25.
Dec. 23, 1886. **A. C. KENDEL,**
115 Ontario St., Cleveland, O.

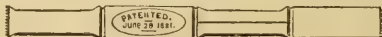
FOR SALE.—5 kegs (of about 180 lbs. each) of white-clover honey at 8c; also 400 lbs. basswood honey in bbl., at 7c, f. o. b. cars here. Honey is No. 1, and well ripened; packages free.
W. D. WRIGHT, Knowersville, Alb. Co., N. Y.

FOR SALE CHEAP.—4500 lbs. choice white-clover honey in 10 and 25 gal. kegs and in 48-gal. bbls.; also 2500 lbs. very fine Spanish-needle honey in 25-gal. kegs and 48-gal. bbls. Will send samples on receipt of 2-cent postage-stamp for each.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—I have about 1600 lbs. of nice basswood honey that I should like to sell between this and first of next month. Part of it is in molasses bbls.; 1 bbl. of 31 gallons. How much am I offered?
AMOS BLANK, Woodville, Sandusky Co., Ohio.

FOR SALE. One Barnes combined scroll and circular saw. Has fourteen circular and ten scroll saws, one cutter-head, two mandrels, three gauges, one sawset, one emery wheel, all in running order; will sell for \$35.00, which is about half cost. Address **E. C. APPLGATE,**
1-2d Poplar Flat, Lewis Co., Ky.

The "Boss" ONE-PIECE SECTIONS.



Patented June 22, 1881.

WHILE attending the North-American Bee-Keepers' Convention at Indianapolis, we learned there was a rumor afloat that the Patent on the ONE-PIECE SECTION had been set aside—circulated by unprincipled parties, to mislead bee-keepers. We would say in regard to this, that such is not the case. It is now before the U. S. Supreme Court, at Washington, and will probably be decided before a great while, when we will notify all through the Bee Journal. Until then pay no attention to rumors.

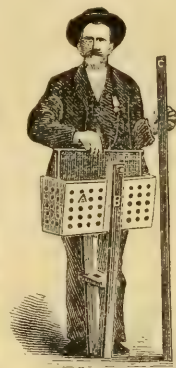
Before ordering write us for prices. We will furnish you sections as cheap as the cheapest. Let us hear from you before you order. Address

J. FORNCROOK & CO.,
Watertown, Wis.

Jan. 1, 1887.

KALER'S

Swarming - Box.



No more CUTTING LIMES! No more ABSCONDING SWARMS! No more CLUSTERING of TWO SWARMS TOGETHER! No more HARD WORK to HIVE SWARMS! EASILY done, QUICKLY done, and WELL done, with KALER'S SWARMING - BOX! Made of GOOD MATERIAL! READY for USE, at \$1.00 each.

Made to SUIT ANY SIZE OF FRAME, by

W. S. KALER,
Andersonville, Indiana.

Send postal for description. In ordering Box, give name of hive and size of frame used.

THE CHAPMAN HONEY-PLANT.



Having expended thousands of dollars in bringing before the people one of the most wonderful honey-producing plants known in the United States, or even in the world, and testing it honestly and fairly, I wish to say, through GLEANINGS, that the seed contains so much oil that nothing but fresh seed will grow for this reason; and by the advice of many prominent beekeepers I have decided to sell the limited amount of seed I have raised this season, at the following prices. I will send to those who have already ordered the amount of seed due them at this low price: ½ ounce, 50 cts.; 1 ounce, \$1.00; 2

ounces, \$1.50; 4 ounces, \$2.00; 8 ounces, \$3.00; 1 pound, \$5.00. One ounce contains from 1600 to 1800 seeds. The seed should be sown in early spring, and general directions for cultivation will be given on each package. Write all orders plainly, and give your postoffice in full.

H. CHAPMAN,
Versailles, Cattaraugus Co., N. Y.



Vol. XV.

JAN. 1, 1887.

No. 1.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single Number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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SEPARATORS.

FRIEND HUTCHINSON TELLS US OF THE REASONS WHY THERE ARE SO MANY DIVERSE OPINIONS IN REGARD TO THEIR NECESSITY.

BECAUSE I am adopting Mr. Heddon's new hive, Mr. Doolittle very naturally supposes that I am also adopting separators. Such is not the case. I was so well satisfied of the advantages of Mr. Heddon's new hive that I adopted it at once, *except* the surplus-apartment. I was well satisfied with Mr. Heddon's old style of surplus case (and am yet), and I did not think it advisable to throw aside the 325 cases that I had on hand, and make those of the new style until I had decided that the latter possessed sufficient advantages to warrant the change. It was one of those instances in which there are advantages on both sides, and the question was, which had the most and greatest? While I have about 50 colonies in the new hive, I have used only 10 of the new style of super; so Mr. Doolittle will see that, instead of leaving that "better method" and "going back to separators," I am only experimenting with a style of super that allows the use of separators, and that about 95% of my crop is yet secured without separators. And right here I hope Mr. Doolittle will excuse me if I take him to task a little for his disposition to "pick up" a man if he advocates any views that he once condemned. There can be no progression without change, and it will be readily seen that new developments may lead a man to adopt views that he formerly rejected.

As to which style of case I shall eventually adopt, I can not say. If I had a quantity of either style I should not throw them away for the sake of adopt-

ing the other style. I certainly should not adopt the new style simply because it allows the use of separators; but if I used it I would then use separators; not so much for the sake of getting straight combs, but rather because, with wide frames, separators are a *convenience*.

If sections are to be glassed, separators must be used; but the indications are that this practice will not long be in vogue. If Mr. Doolittle can not abandon separators, and yet secure cratable sections, without entailing extra labor, then his hive, fixtures, or system, is such as will not profitably admit of discarding separators, and it would be folly for him to change either, simply to be able to dispense with separators. There should be weightier reasons; and if he can do no better than he reports, he is wise to retain separators.

I must take issue with him, however, in regard to the advantage gained by putting on only a small amount of surplus room at first, and very gradually increasing it. I would not be understood as advising the putting-on of an *unusually* large amount of surplus room at one time. The putting-on of a section or two at a time, or even a wide frame or two of sections at a time, involves too much labor. In the production of honey there is no factor so expensive as labor, with proper fixtures, and there never was and never will be anything gained by putting on or taking off less than a case of sections at a time. The point made by Mr. Doolittle in regard to getting off sections before they are soiled by the bees is a good one; and where the honey is finished in proximity to the brood-nest it may be necessary to remove it a section at a time, and then, of course, separators are a necessity; but with the tiering-up method, *no combs are sealed near the*

brood-nest, and the upper case can be left on until the sections are finished, with no danger of the combs becoming travel-stained.

With Mr. Doolittle's hives and fixtures, separators are undoubtedly a necessity. In fact, I fail to see how he could, as he claims to have done, given the non-separator business a fair trial; because it is only upon the tiering-up plan that separators can be abandoned with any hopes of success; and I believe that Mr. Doolittle's hives do not admit of this function.

I heartily agree with Mr. D., that we should do all we can to maintain decent prices for honey; and if any one can not secure straight combs without separators, by all means use them.

Rogersville, Mich.

W. Z. HUTCHINSON.

ANOTHER REPORT IN FAVOR OF HYBRIDS.

FROM 38 TO 91, AND 4774 LBS. OF EXTRACTED, AND 250 LBS. OF COMB HONEY.

I COMMENCED last spring with 38 good swarms and 7 light ones, making 45 in all. I had to transfer 21 of those into movable-frame hives. After this was done I built them up so when white clover came in bloom they were all in good condition, and ready for business.

I commenced extracting about the 10th of June, I believe, and closed, or stopped the extractor, just after basswood-bloom. During July and August I increased, by artificial swarming, to 91 swarms, with the exception of 7 or 8 that I got by natural swarming. I got, during the season, 4774 lbs. of extracted honey, and 250 lbs. of comb honey in one-pound sections. I sold the entire lot in my home market, with the exception of one barrel shipped to Milwaukee, besides buying $2\frac{1}{2}$ barrels of my brother, M. M. Rice, in order to supply my trade. I have received, on an average, 8 cts. per lb. for the extracted honey, and 15 cts. for the comb honey.

It will be five years next fall since I commenced keeping bees, and all I have to regret is that I did not commence 20 years before. My stock of bees is well-mixed Italians, hybrids, and blacks (and they are black too). I have been trying to find out which are the best workers for all kinds of work (laying all argument aside). I had rather have good hybrids for all work than any Italian bee I ever saw, and I have some as yellow-banded as any one else. My queens are from A. I. Root. I have a number of them. I have one very large swarm of hybrids that gave me by weight, this season, 285 lbs. of honey, besides 3 good swarms of bees. If any one should offer me \$10.00 for that hybrid queen I should be obliged to say no, for there was no end to her laying propensities. Whenever I want a lot of foundation drawn out quickly, I am sure to put it into a hive where there are hybrids or blacks.

During the last two years I have received more stings from my Italian bees than from the blacks. I will admit, that the blacks and hybrids are more irritable, and will run and leave the combs more than the Italians will, and it is harder to find their queens; for instance, when you want to clip their wings, or supersede them. But, putting up with all this trouble, I know the blacks and hybrids will make more comb honey, draw out more foundation,

do less swarming (by my own experiments) than all the Italians I have got.

B. E. RICE.

Boscobel, Grant Co., Wis., Dec., 1886.

Friend R., this question in regard to hybrids vs. pure Italians came up at the Michigan State Convention; and when I told them I had for a long time been fearing we were making a mistake in getting out every trace of black blood, it made something of a sensation; and more still when I added that we were ready to furnish hybrid queens whenever our customers asked for them. It has many times given me pain to see a bee-keeper destroy a queen that was a magnificent one in every respect, because her bees were not all three-banded. Perhaps it will be necessary for us to start another apiary to furnish a choice strain of hybrids; and I begin to think that such an arrangement will meet the wants of a great many. The price of queens reared from our best hybrid honey-gathering stocks will be the same as untested queens reared from our best imported mothers. We shall be glad to have orders early in the season, so we may know what preparations to make. I have before mentioned that we have a few customers who order hybrids every season; and if we happen to be short, and send untested Italians in their stead, they sometimes object.

MRS. COTTON.

HER CIRCULAR FOR 1887.

WE are very much pleased to note the great improvement in the above circular, and in Mrs. Cotton's mode of doing business in general. Our readers will remember that we have published several favorable reports from those using her hive and fixtures. We are very glad to do this; but in justice we can not refuse to publish the unfavorable ones as well. We have, however, consented to forward them to Mrs. Cotton before publishing them, in order that she may have an opportunity of making satisfactory any mistakes or misunderstandings.

Mrs. Cotton still recommends feeding sugar syrup to bees just before the harvest opens, and, indeed, to such an extent that they store some of this syrup in the surplus-boxes. She says this feed, when stored in the combs by the bees, can not be distinguished from the best white-clover honey by the most delicate taste. Now, while it is true that a great many might not notice a little sugar syrup mixed in with some clover honey, I think she is *greatly mistaken* in putting it so strongly as this:

The feed I use costs only about seven cents a lb., and, when stored in the combs by the bees, can not be distinguished from white-clover honey by the most delicate taste.

Again, on page 8, she says:

Under my system of management, I, by a simple process, subdue the anger of the bees, so that they can be handled without the least danger of stings.

And further along:

The members of my family are seldom stung by the bees (not one case in a year), notwithstanding I sometimes have fifty hives or more where we pass within twenty feet of them many times every day, while the bees are flying in thousands about each hive.

Now, while the above *may* be true, I believe almost every bee-keeper in our land, including those who have nothing but full-blood Italians, would say the statement is very much stronger than any thing ever ought to go into print in regard to bee-stings. On page 4 we find the following:

Swarming is controlled as completely and with as much certainty as the increase of cattle, sheep, or swine. If swarms are desired, we arrange in early spring to have them issue any week in the swarming season that will best suit our convenience, and they will swarm at the time designated.

Now, I am not positively sure that Mrs. Cotton can not do this; but if she can make her bees swarm or not swarm, as she chooses, she has gone beyond any of the veterans or experts in bee culture, at least so far as I am informed. She still charges \$4.00 for drawings and illustrations; but to modify it she offers to deduct the \$4.00 paid, from the first order for bees or hives. Her prices are still away beyond those of any other dealer in bees or supplies; but if her customers are pleased and satisfied, I do not know that we have any right to object. Perhaps the reason why her customers are satisfied, is because they are not posted in regard to the usual prices of such goods; if so, it behooves supply-dealers to let people know what other people charge for swarms of bees, both black and Italians, and other commodities.

Mrs. Cotton now furnishes her Controllable hives in the flat, to be shipped by freight. This is a very great advance over her former method of doing business. Mrs. C., in a private letter, expresses the wish to hear from every customer who is in any way dissatisfied with any dealing they have with her; and if she carries out this plan, I do not know why she should not have a place among the supply-dealers of our land.

FOUNDATION OR NO FOUNDATION.

Shall it be Used in the Brood-nest When Securing Comb Honey?

ALSO SOME FURTHER REMARKS IN FAVOR OF BLACK BEES FOR COMB HONEY.

THE last number of GLEANINGS is full of good articles as usual, and I derive much pleasure and profit from reading them. I think Mr. Hutchinson is honest in his ideas and opinions regarding the use of foundation in brood-chamber, but I am sure that rules laid down for the same in his location will not do for this locality, where we have a long slow season for surplus honey. The first honey of importance is from locust, from May 10th to 20th; then poplar about May 25th. White clover and blue thistle blossom at the same time, June 1st to 10th. These two latter sources give us most of our surplus. Blue thistle gives us a steady flow of honey to the first of September, if not too dry.

After repeated experiments the past four years, we have decided that only full sheets of fdn., put in on wire by the Given press, will do for us. Swarms hived on starters in brood-frames will not do any thing in sections until the brood-chamber is full, clear to the bottom, unless the swarm be a double one, in which case they are pushed to work

in sections for want of room. Swarms hived on starters about one inch wide usually give us from 10 to 20 pounds of honey in sections, while those hived on full frames of fdn. give us an average of 40 lbs. of comb honey. I do not doubt that, by using division-boards, and confining swarms to one-half of the brood-chamber, they would be forced to commence work in sections at once, and thereby store more surplus honey; but then we should be obliged to feed sugar to them to make up the necessary amount of stores for winter—a practice which we do not believe in. Next season we will make a more careful report on the advantages derived from the use of fdn. in brood-frames as regards amount of section honey stored.

As regards the amount of drone comb built, we think an advantage fully as great is gained by the use of full sheets of foundation; for unless we do it, some swarms will fill nearly one-third the space in brood-frames with drone comb.

We transfer a great many box hives every spring to frames; and after throwing out all drone comb and other poor comb, we do not have nearly enough to fill all the brood-frames, so we make up the deficiency with full frames of foundation, as we know by experience that transferred colonies in the spring will immediately fill the extra frames given them with one-half, at least, of drone comb, when furnished with starters only.

We are glad to see Mr. France, Heddon, and other prominent bee-keepers say a good word for the black, or native bees of this country. We, too, give them a decided preference, and would feel sick if all our comb honey were made by the Italians. We have tried queens from Alley, Thomas, Shaw, and other breeders, but have never yet seen any thing that will make any more honey, and as nice honey, as the native bees of Virginia. The native bees do not use one-half the propolis about the hive that the Italians do, and they are not so ready to follow the bee-keeper from one hive to another while operating, and pitch into what belongs to another. I have noticed, the past season, that nine-tenths of the bees entering the house and honey-house are the yellow ones, and we have only four or five stands of them out of 80 in our home apiary. The only thing I can say in favor of them is, that they defend *themselves* better against robbers, and are a little nicer for timid people to handle.

Our demand for honey has been good this season, and we have disposed of two-thirds of it at a good fair price, and we think that a good article, neatly put up, will continue to bring a fair price.

Front Royal, Va., Dec. 23, 1886.

H. W. BASS.

Friend B., I am not sufficiently well posted in this matter of Hutchinson's way of working to say just where you have failed to follow his plan of management; but at the Michigan Convention the matter was talked over so thoroughly that I became convinced that anybody will succeed as friend Hutchinson does, by observing all the conditions. These conditions have all been given at different times through the various journals; but the matter is more complex than one might imagine, and I would suggest that friend H. carefully prepare an exhaustive article, taking in all the points necessary to secure all nice honey in the surplus-arrangements. I think the whole would make a nice

little tract or pamphlet, and I should be very glad indeed to offer it for sale. Now, friend W. Z. H., roll up your sleeves and give us this little book. You can do it nicely, we all know. Let us have it before commencing another season's work.

FOUL BROOD.

STARVATION THE CAUSE.

I NOTICE on page 947, 1886, where one T. F. McCamant says, in his report under date of Oct. 18, 1886, that, "Early in the season foul brood made its appearance, and, so far as I have heard, there is no one who has not suffered more or less loss." Now, friend Root, allow me, in all justice, to enter a protest. I am living in the same section of country as friend McCamant, and have been corresponding with some leading bee-keepers living both east and west of San Antonio, and a good deal nearer to San Antonio than I do (and I am only 60 miles), and I have never heard one single intelligent bee-keeper state that he had had one case of foul brood; but I did hear one old box-hive man say that he had lost some colonies with foul brood; and when a man would come along and say his hives smelled bad, this same old bee-quack (who has been in the business 30 years, to my knowledge), would at once tell him he had foul brood, and no mistake. Now, friend R., what do you think this terrible disease was? Why, simply starvation. I examined a number of colonies which had died in this way, and I found that they had starved to death and fallen to the bottom of the hive, and, of course, smelled bad, like any other decaying mass. My friend in San Antonio evidently has not come from the field of battle, but has taken his information second hand. If friend McCamant will kindly furnish me the name and address of the leading bee-keeper who has lost so many colonies, I will sift the matter to the bottom. If it takes a trip to San Antonio to do it. I have written to friend McC. about the matter; and if the thing is a slander I will run it down, as it may injure us bee-keepers if it is not corrected. All this started last spring when bees were starving all over the country, so the story is not new to me; but I had hoped that it would not get into the papers, so I explained to all in my locality that foul brood is a disease of the brood, and not of the mature bees.

M. BROERS.

Gonzales, Tex., Dec. 13, 1886.

Friend B., you are right; but perhaps you need a little more charity. Is it not possible that friend McCamant intended to mention only his immediate neighborhood—say three or four miles from his home? In regard to the false alarm, I am sure there is a good deal of it. At the Michigan Convention one young man was telling how terribly frightened he was to find foul brood in his apiary. When we asked him how he knew it was real foul brood, he said he recognized it by the taste of the honey and by the looks of the capped combs. When some of us smiled at this test he said he would send a piece of the honey to Prof. Cook, and see if Prof. C. would not pronounce it foul brood at first sight.

SEALING JELLY-TUMBLERS WITH MELTED WAX.

HONOR TO WHOM HONOR IS DUE.

THERE, friend Root, I've found it. I knew I had seen it somewhere, and I was pretty sure it was in the *Canadian Bee Journal*. I am not apt to say a thing is so till I can prove it. Well, perhaps you want to know what I am getting at. It is this: On page 974 of GLEANINGS you speak of sealing honey-tumblers with wax, and say you "feel like giving an Indian war-whoop of exultation" when Mr. Cutting told how to do it, at the recent Michigan Convention at Ypsilanti; but he gave me the credit of the invention. I thought I had seen the suggestion either in GLEANINGS or the *C. B. J.*, but yourself and "our genial friend McPherson" denied the "soft impeachment;" and that shows that all editors don't remember every thing, any more than we "common mortals."

Now, "Render unto Cesar the things that are Cesar's," as you say, by calling attention to or quoting from the bottom of the first and top of the second columns on page 285, *C. B. J.* for 1886. We read as follows:

SEALING JELLY-TINS.

Here is a new way to seal jelly-glasses, with tin tops. Have a dish with hot wax; the wax may be kept at the proper temperature by allowing dishes containing the wax, to float in boiling water. Then take the jelly-glasses, invert them, holding them inverted, and dip them into the wax, just down to the rim, about $\frac{1}{4}$ of an inch; the wax coats the outside and top of glasses, but not the inside, for the reason that the air prevents it; besides, if it is held in the wax a short time the heat expands the air, causing the wax to settle down in the center under the glass, so a hollow may be seen in the wax under the glass; the lid is then warmed and pressed on. It not only makes it air tight at the sides, but the wax on the rim of the glass fits tight against the lid, thus sealing it nicely. Try it and see if it does not please you. These packages are becoming so popular we find them in great demand.

You speak of warming the tumblers. It seems to me it is better not to warm them, for two reasons: If warm, there will not so much wax remain on them, and they will have to be held longer to let the wax cool on them, but the covers should be made quite warm. If you could have seen Mr. Cutting and myself waxing and filling, and put the covers on a lot of glass tin-top jelly-tumblers at the Michigan State Fair at Jackson, last September, you would have seen a very interesting as well as instructive tableau. Friend Cutting was melting wax in a basin, over one of friend Hutchinson's oil-stoves, and I sat on a small box in front of a honey-extractor, filling the tumblers with honey, and W. Z. H. was leisurely walking about, enjoying the interesting scene, and, with Mr. Cutting, frequently warning as well as commanding me to be careful and not get any of the honey on the edges of the tumblers, or on my clothes. Cautious, weren't they? They hated to lose any honey, you see.

Auburndale, O., Dec. 25, 1886.

A. B. MASON.

Friend M., we own up and beg pardon. The joke comes on friend McPherson, after all. The point to it is, that it was on the first page of the *C. B. J.* for July 7, under the head of Our Own Apiary. Why didn't you keep still, old friend, and carry the credit? At any rate, we shall give you the honor of bringing the matter prominently before the public.

THE BEE-KEEPERS' UNION.

MRS. HARRISON GIVES US SOME GOOD IDEAS ON THE MATTER.

I DO not know but I'm a little off on the subject of the "Bee-keepers' Union." It appears to me a little like this: A young man from one of the remote Dutch settlements in Pennsylvania went to college, and then studied medicine. On his return to the place of his nativity, the neighbors looked up to him as a very wise and learned man, and were always sending for him to prescribe for them. In revolving the matter over in his own mind he said, "Why is it that there is so much more sickness now, than when I was a boy?" He threw up his practice and built a tanyard, and people would come to his mill and tell him of their ailments. All the answer this wise man would give was, "Do different; do different."

Since the organization of the Bee-keepers' Union, lawsuits and neighborhood quarrels are more frequent. If I should be put upon the witness-stand, and sworn to tell the "truth, the whole truth, and nothing but the truth," my testimony might be more damaging to the bees than many of my fellow-apiarists would like. It is true, that bees going to and from their hives in pursuit of honey, molest no one; but how is it when they have been roughly handled, such as is sometimes the case, when honey is being extracted?

I was at one time working with my bees, oblivious of every thing, except what I had undertaken to accomplish, and did not notice that I had angered the bees, as I was well protected against their stings. At the same time, a number of teams were employed in grading the street in front of the apiary, and I afterward learned that the drivers had great difficulty in managing them, as the bees stung them until they were almost frantic.

This fall, after the frost had killed the flowers, I was removing the surplus, and the bees were very cross. A widow owns a span of horses and a sprinkling-cart. She lives across the alley from our apiary. I almost trembled when I saw her team driven home at noon, but, fortunately, they were put in the stable without an accident. If these horses had been stung, and had run away and destroyed this woman's property, would I not have been morally responsible for her loss?

Bees are stock that we can not at all times control. If I could, I would keep them away from my neighbors' pumps. I aim to have fresh drinking-water at all times in the apiary; but it does not satisfy them. Occasionally a person or child is stung by pinching them accidentally. Some of my neighbors keep geese, and let them run at large, in direct violation of a city ordinance. These geese rest in the shade of trees upon our sidewalk, and make it foul. If I should complain to the police about these geese, how long would it be before their owners would find out that our bees were a dangerous nuisance?

Many of our Western towns have their business houses facing a public square, and the square has wells of water and hitching-posts for the accommodation of farmers and the public generally. I know a bee-keeper who has an apiary facing such a square, and is an injury to the trade of that town, for people are afraid to take their teams there, and so go somewhere else. I suppose if the authorities

should try to compel their removal he would call on the Union to defend his rights.

The Canadian bee-keepers are at present greatly agitated because one of their number is openly accused, by a neighboring blacksmith, of maintaining a nuisance, and are profuse in their offers of assistance to defend him. It appears to me that the bee-keeper is at fault, as he first complained of the blacksmith keeping a nuisance, in the shape of a bad-smelling pig-sty—a mere neighborhood quarrel, in which bee-keepers should have no interest.

Peoria, Ill.

MRS. LUCINDA HARRISON.

My good friend Mrs. H., I am very glad indeed to have you take up the defense on the other side. Your point about the geese is an excellent one. One of our neighbors keeps a large lot of chickens that have for two or three years made themselves very much at home, and apparently quite comfortable, whenever our great luscious Sharpless strawberries were in bearing. We chased the chickens home for quite a while before my wife suggested making complaint. I told her the result would be, probably, that somebody would complain about our keeping so many bees, and I thought the best way would be to fence the chickens out. This we did with poultry-netting, and the poultry-netting fence looks so pretty that I am well satisfied with the investment. It also prevents loose cattle and sheep from getting into our strawberry grounds. All these things should be taken into consideration before having differences with a neighbor; and if the Bee-keepers' Union is going to be used for the purpose of backing up one party in a neighborhood quarrel, it will certainly be a very bad thing all round. I have several times seriously questioned the propriety or right—that is, the moral right—of keeping a considerable-sized apiary very close to stores, groceries, or a public square. Perhaps if the apiary contained only a dozen or twenty colonies, and it were surrounded with close-growing trees—evergreens, for instance—so as to start the bees straight up in the air, it might not be an annoyance. Remember Paul's suggestion in regard to matters of this kind—"If meat make my brother to offend, I will eat no flesh while the world standeth."

FOUL BROOD.

FRIEND J. A. GREEN GIVES US HIS EXPERIENCE IN THE USE OF SALICYLIC ACID AND PHENOL.

THIS subject has been so much written on during the past few months in GLEANINGS that perhaps it is getting to be an old story to many of its readers. The reports of cures are so various that the person who discovers the presence of foul brood in his apiary is apt to be puzzled to know what method of cure to adopt.

The disease is so contagious in its character that promptness in its treatment is all-important, and it behooves every bee-keeper to not only acquire a thorough knowledge of its character and appearance, but to decide on the best method of cure, and be prepared to apply that cure without delay.

I have had to deal with nearly a hundred cases of foul brood of the genuine virulent type. I have

observed and worked with the disease from early spring to winter, during times of scarcity and abundance. I have tried all the remedies that seemed to me to be based on reason. I believe I am through with it now, and the hope that my experience may prove of value to others is what leads me to write this.

It seems to me that many of those who have written on the subject in our magazines have had erroneous ideas as to the nature of the disease. These ideas may be correct, as applied to their limited experience, but the method of cure adapted to one time and set of circumstances may utterly fail among other environments. I know that I have been led astray by methods that seemed plausible, and I am afraid that some of the theories lately propounded have not a very solid foundation on fact.

There are some points which need to be cleared up to the popular mind, if the disease is to be successfully combated. The usual descriptions of the appearance of the diseased brood are, for the most part, correct, but I will recapitulate.

In most cases the larva is attacked when nearly ready to seal up. It turns slightly yellow, or grayish spots appear on it. It then seems to soften, settles down in the bottom of the cell, in a shapeless mass, at first white, yellow, or grayish in color, soon changing to brown. At this stage it becomes glutinous and ropy; then, after a varying length of time, owing to the weather, it dries up into a dark coffee-colored mass. Usually the bees make no attempt to clean out infected cells, and they will sometimes fill them with honey, covering up this dried foul-brood matter at the bottom.

Sometimes the larvæ do not die until sealed over. We have been told that such may be easily detected by a sunken capping perforated by a "pinhole." This is by no means invariably the case. Such larvæ will often dry up entirely, without the cap becoming perforated or perceptibly sunken, although it usually becomes darker in color than those covering healthy larvæ.

The most fatal misapprehension has been in regard to the smell of the disease. In its first stages there is no perceptible smell, and it is not until the disease has made considerable progress that any unusual smell would be noticed by most persons. In the last stages, when sometimes half or more of the cells in a hive are filled with rotten brood, the odor becomes sufficiently pronounced, but the nose is not to be relied on to decide whether a colony has foul brood or not. Long before it can be detected by the sense of smell, the colony is in a condition to communicate the disease to others.

The eye alone can be depended on, and it must be a sharp and trained eye too, if any headway is to be made in curing the disease.

MY EXPERIENCE WITH FOUL BROOD.

When I first discovered the presence of foul brood in my apiary I knew of only two cases. I immediately introduced new queens to them, as I had had some experience with a form of diseased brood which was readily cured by the introduction of a new queen. This disease is not at all contagious, and I believe will generally if not always cure itself if let alone. I have no doubt that many of the so-called cures for foul brood have arisen from experience with this disease, or with brood which has been starved, chilled, or smothered.

Finding that this did not cure them, I resolved to

destroy them. All surplus combs and part of the hives were burned. The hives were then tightly closed, and at night a pan of burning brimstone was placed over the frames. In the morning I found that this had gone out without accomplishing its purpose. While waiting for nightfall to try it again I made a thorough examination of the apiary, and found eight or nine others with the disease. Some of these I had extracted honey from only a few days before, and there seemed no doubt that the disease would spread—as it did.

I now determined to try to cure them. Salicylic acid was most recommended then, and the Bertrand method of fumigation seemed to me the best way of applying it. All affected colonies were therefore arranged so they could be fumigated without handling combs or opening the hives. This seemed to arrest the progress of the disease somewhat; but after faithfully carrying it out for nearly two months I despaired of effecting a complete cure.

I now determined to be thorough in my treatment, so I combined the Jones, or starvation plan, with Muth's plan of feeding salicylic acid; and after starving the bees until all their honey was exhausted I put them in a clean hive on full sheets of foundation, or on empty combs, and then fed them salicylated syrup. This method was entirely successful; but winter was now at hand, and I still had several diseased colonies. After waiting until rather late in the season—all brood had been gone for some time—I extracted their honey and fed a part of them on salicylated syrup, and a part on syrup with 1-7 % of carbolic acid. All of these died during the winter except one, and that had foul brood in the spring. This spring a weak colony was robbed. An examination showed that it had foul brood, and the disease was thus scattered broadcast again.

I now tried the Cheshire plan of feeding carbolated syrup. Some were cured by it, and I now thought I had found a practical and simple cure; but before all were cured, the honey-flow began and the bees refused to take the feed.

I now returned to the starvation method without feed. I found that, when the bees were hived on foundation, they were cured; but when hived on empty combs they often developed the disease again. When hived on full sheets of foundation without starving, the disease generally returned, although a neighboring apiarist reported success by this plan with the addition of caging the queen for forty-eight hours.

A few colonies in which the disease was just starting, and only a few diseased cells were to be found, were cured by scooping out the dead larvæ, washing out the cells thoroughly with an atomizer, and spraying the surrounding comb with a two-percent solution of carbolic acid.

Several colonies, in which foul brood was unmistakably present, conquered the disease without assistance.

This was during a heavy honey-flow. I shall have something more to say in regard to the bearing this has on the case.

I now discovered that the colonies that had undergone the starvation process were far behind those similarly situated, except that they had not been starved. I then tried feeding them during their confinement, with phenolated syrup, and found it a great improvement over starvation.

By this time the fall yield of honey had come, and I still had some cases of foul brood. I shook these from their combs into a new hive with a set of sections filled with foundation above, separated by a queen-excluding honey-board from a contracted brood-chamber having only narrow starters of foundation—in short, Hutchinson's plan of hiving swarms. All these colonies not only went actively to work, filling brood-chamber and 28 sections in a very short time, but none of them showed any traces of foul brood. This was in accordance with the theory I had formed on the subject. Investigation showed that Quinby used a plan embodying the same principles, 50 years ago, and which Doolittle has more than once recommended in our journals.

Meantime a number of nuclei used in queen-rearing were attacked by the disease almost simultaneously. I overlooked them carefully, washing out all affected cells with an atomizer, then sprayed bees and combs with thin syrup containing one-seventh per cent of carbolic acid. This ended the disease.

It is not at all impossible that foul brood may reappear in my apiary, but I feel that, with the knowledge I have gained of the disease, I shall be able to speedily conquer and finally exterminate it.

With the permission of the editor I shall have something more to say on this subject in the next number of GLEANINGS, detailing what I consider the best methods of cure according to varying circumstances, with reasons therefor, and giving the exact steps so that a novice may not err.

Dayton, Ill., Dec. 10, 1886.

J. A. GREEN.

I am very, very glad, friend G., to have you indorse father Quinby's sensible views of so many years ago; and it is not very much to our credit that we have discussed the matter all this time without even thinking of looking into our old standard textbooks. I am glad to know, also, that you find carbolic acid, or phenol, at least a partial remedy. Let us have your best methods of cure.

REPORT FROM L. C. ROOT.

Something in Regard to his Honey Yields For the Past Twelve Years.

THE POSSIBILITIES BEFORE AN INTELLIGENT AND SKILLFUL APIARIST: 4103 LBS. OF LINDEN HONEY FROM 40 COLONIES IN ONLY 7 DAYS.

SEVERAL years ago, after having spent five years with father Quinby, I decided to commence bee-keeping by myself. With the benefit of our combined experience I located here, considering it the best location we could select, with all the experience we had gained in purchasing bees, honey, etc., during the years that had passed. In order to locate just where, and as I desired, I purchased the land without buildings, and arranged all with especial reference to conducting this business. The facts are, this is a very fine location, and it is a rare chance for some one who desires to take advantage of it. Under the advice of a physician, I am to remove to a salt-water location. I have purchased a place at Stamford, Ct., on Long-Island Sound. I am quite anxious to dispose of my property soon, as I have possession of my place in Connecticut Feb. 1.

L. C. ROOT.

After receiving the above from friend

Root, I wrote him that a report of his work for the past twelve years would be exceedingly interesting to the readers of GLEANINGS; and although this report may favor him in securing a customer for his place, we are glad to get it nevertheless, for it is seldom that friend Root has been induced to write on bees for any other journal than the *American Agriculturist*:

BOTH SIDES.

In answer to yours of Dec. 6, I would say that I have not reported my yields of honey of late, for two reasons. First, because many people who are in less favorable locations will not credit such reports; and, second, because reports of such yields often cause the inexperienced to engage in bee-keeping, with the anticipation of unwarranted results. Let me say, then, first, that such yields as I have secured can be gained only in very favorable locations, and with much practical experience. Beginners should not expect such results. During my first five years in keeping bees as an exclusive business, while associated with the late M. Quinby, he would frequently remark, when I made mistakes, that I was paying for *my license*. This we must all do before we shall attain success in any calling. I shall not only give some facts in regard to the best yields of honey I have taken, but also some of the reverses.

My first season, 1869, was a most disastrous one. There seemed to be absolutely no nectar in the blossoms, and nearly all stocks had to be fed for winter. The following year was a correspondingly good one, and we obtained what seemed to be an incredible yield. Some stocks gave us over 200 lbs. of box honey, and from one stock we extracted 361 lbs.

In 1874 I came from St. Johnsville to my present home. I selected this location because it offered more advantages than any other which I had seen during several years of experience in purchasing bees and honey. I commenced here with 100 colonies, in but medium condition. The first part of the season afforded me just honey enough to induce breeding, as a result of which I was able to make my stocks very populous. My first surplus was taken July 20, when linden came into bloom. During the next 40 days I secured 10,271 lbs., about one-third of which was comb honey. Since that time I have averaged good yields until the present season, which has been the poorest since 1869. Had it not been for experiences gained during that year I should not have been able to secure even the 6000 lbs. that I did from 100 stocks. If we do not become discouraged during such reverses, experiences may be gained which we can not get in any other way.

In referring to some of my best yields during the time mentioned, I do so in the belief that it may encourage some to investigate the methods by which such results may be attained. My largest average yield from an entire apiary was 9727 lbs. from 40 stocks. The largest in a given time was taken a year ago last summer, when I secured from 40 stocks 4103 lbs., all gathered in just seven days. This was gathered from linden. It is little wonder that this source of honey should fail the present season, following as it did one of such extreme abundance. This entire failure of linden honey has furnished us a great opportunity for testing some of the other sources of honey.

I have never been so thoroughly convinced of the

value of alsike clover as at present. The quality of the honey can hardly be surpassed. As you are aware, the past season also gave us great advantages for testing the merits of the "Chapman honey-plant," which seems to offer great promise for the future. Such a season also shows the wisdom of the present agitation of the subject of supplying forage for our bees, so that the sources may be greater and more certain.

L. C. ROOT.

Mohawk, N. Y., Dec. 6, 1886.

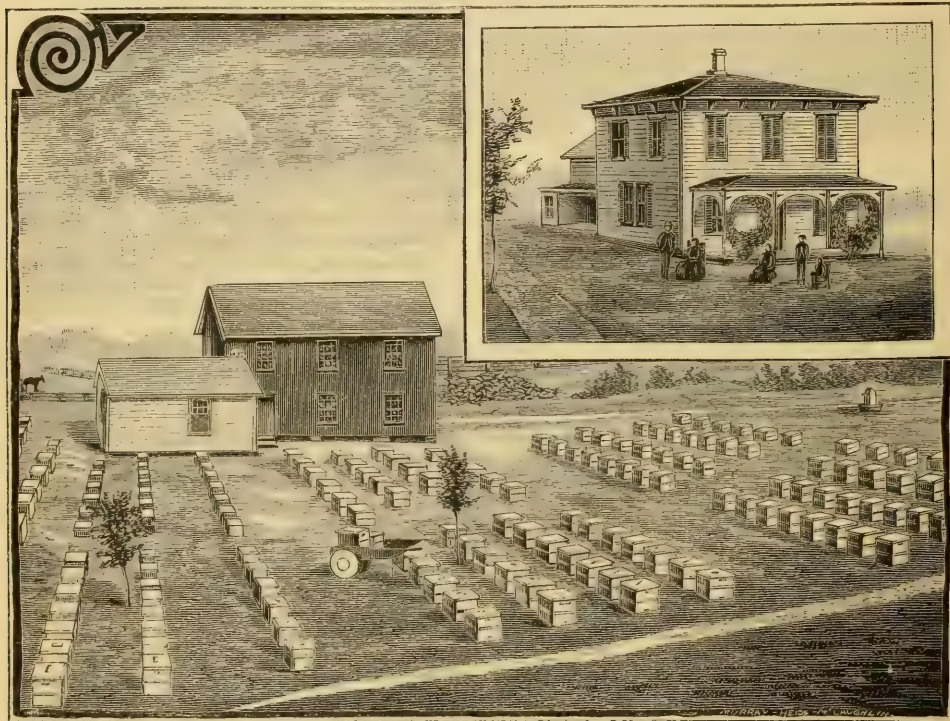
There are three points in the above, to which I wish to call attention. First, the wonderful capabilities of basswood, and that we are almost all of us destroying this beautiful tree in making honey-sections, about as fast as we can do it. How many bee-keepers are planting basswoods for the

for instance? Ere long we are going to test the matter with our 4000 young basswoods; and 4000 large trees in full bloom would probably keep 40 colonies busy, say for the greater part of two or three times seven days.

SKETCH OF THE HOME AND APIARY OF T. P. ANDREWS, FARINA, ILL.

A GLIMPSE OF THE PLACE WHERE FRIEND A. SPENDS HIS TIME.

BY way of an explanation of the engraving I will state that only about two-thirds of the hives are shown in the cut. The small building at the left is the honey-house, where the extracting is done, where the honey is kept,



APIARY AND RESIDENCE OF T. P. ANDREWS, FARINA, ILL.

rising generation? Second, I want to emphasize what friend Root says in regard to the value of honey from alsike clover. I have been able to secure about two dozen jars from the lot I have mentioned, exhibited at our Ohio State Fair. I paid about 35 cts. per jar for these, for samples. If anybody wants one before they are gone, they can have these for 40 cents. This beautiful liquid amber honey has not candied a particle at the present writing, although we have had weather below zero. Third, forty colonies may gather, in one location, over 14 lbs. a day each, on an average, for 7 days in succession. Which one of us has even a glimpse of what the future of the honey-business may be, in favorable locations—an apiary located in the midst of a basswood orchard,

and where the surplus combs, taken from the upper stories of the hives, are stored away for winter. The larger building is my workshop, and is fitted up with machinery for cutting out hive material and other fixtures.

Our honey in this vicinity is gathered mainly from coreopsis. This plant, often misnamed "Spanish needle," is very abundant in this locality, covering many of the fields after harvest with a solid mass of bright yellow blossoms. The honey gathered from this bloom has an exceptionally rich and pleasant flavor. The superior quality of this coreopsis honey is so well described by a correspondent in a recent number of the *American Bee Journal*, that I will quote his words:

"The honey produced by this plant is fast coming into public favor. Its rich, beautiful golden color,

exquisite fragrance and taste, with heavy rich body, weighing about 12 lbs. to the gallon, make it a favorite among epicures, and is sought for in our home markets above all others."

During the past 17 years bee-keeping has been my principal business, having now 300 colonies.

Farina, Ill.

T. P. ANDREWS.

We are sorry that friend A. did not take time to explain a little more. That honey-house with the wire cloth over the window fronting the audience—we want to know what is inside of it. Also that big wheelbarrow with two hives loaded on it, and with very great big whopping wheels that look like palm-leaf hats. How do you like the arrangement, friend A.? How far apart are the hives? and don't the bees get in the wrong hives more or less, when you have them so close together, and such long rows? I think you can tell us a little more about it in our next issue.

MARKETING EXTRACTED HONEY.

Something About the Right Man For Selling Honey.

EXCELLENT SUGGESTIONS FROM E. FRANCE.

RAISING large quantities of extracted honey is one thing; but when it comes to sell, and get paying prices for the honey, I confess we are not master of the situation. Still, we manage to get rid of all the honey we raise, although we have 30 barrels yet of this year's crop on hand.

Until the year 1884 our home market took all we had, except a little sold to a few neighboring towns. In 1884 we secured 31,276 lbs. of honey. The question was, whether we could sell all that honey. To make the matter still worse, three other honey-producers had sprung up, with an aggregate amount of 15,000 lbs. of honey to sell, and they were all looking to our home market to dispose of their crops. This would take a big slice off from my home trade. We were, in consequence, compelled to look up some other market. We put an advertisement in GLEANINGS, which brought an order from Messrs. Thurber, Whyland & Co., of New York. We sold them 21 barrels, and obtained cash for it, at 8½ cents. We got several other customers, some of whom are still buying of us, to sell again.

SHARKS, AND WHAT TO DO WITH THEM.

We also had an order for 12 barrels, from G. W. House, of Manlius, N. Y. We sent him the honey, and he cheated us out of our pay. But we got rid of the honey all the same. By the way, I have learned we are not the only ones whom he cheated out of their honey. Still, he has no property—poor fellow! I am very sorry for him. He is worse off than most of the parties who sold him their honey, and I should think that, by this time, he has learned that gambling and bad whisky are a bad combination. Now, the upshot of this is, when one of our number gets caught we ought to "squeal" loud enough so that every honey-producer in the country can hear it. Then the rest of us will look out and not get caught.

I bought a 1000-mile ticket on the St. Paul railroad, and took a trip out through Iowa, stopping over at almost every village. I sold honey to grocerymen, hotel-keepers, and others, to use and sell again. In that way we managed to work off the crop, besides

starting a trade with several parties who are still dealing with us.

In 1885 we had something over 30,000 lbs. of honey; but with the trade that we had worked up the year before, we worked it off without much trouble.

This year, 1886, we secured 42,489 lbs. of honey, with prices fully one cent lower than last year. But we have the honey, and have to take the market, so I purchased another 1000-mile ticket; took another trip west through Wisconsin out into Minnesota, stopping along as before, and selling in almost all the towns I visited. I went out to St. Paul and Minneapolis, and on as far as St. Cloud, Minn., then returned over another road. I was gone about four weeks. I sold a good deal of honey, but still we have 30 barrels yet to sell, and there is quite a long time yet before another crop will be harvested. I think we can work it off by that time.

SELLING HONEY, AND HOW TO DO IT; THE RIGHT MAN TO SELL.

We have sold a large quantity of honey to grocerymen and store-keepers, to sell again; but we find that the grocerymen are not the best men to sell honey—that is, extracted honey—in kegs and barrels. They won't push the sale of it. There are very few of them who will keep it in sight, or make much effort to sell. If their customers call for it they will sell. We find that, if some good honest person, one who is respected by his own town-folks, and who can take time to make a special business of selling honey, will go to every house, show the honey, either by sample or sell it as he goes, and work up a trade, supply everybody who will buy, he is the man to sell honey. Many small bee-keepers who don't raise enough to supply their own home market are good men to sell honey, as their town-folks will look to them for honey. There are a great many towns which do not, as a rule, use honey to any extent, but would use thousands of pounds every year if we could find the right kind of a man living in the town to sell the honey. I believe nearly every town or village of any importance has the right man or person to make a good salesman, and one could build up a good trade in honey, make money for themselves, and help to work off our big crops. But the trouble is to find the one to do the selling; and when they are found, they are not store-keepers, as a rule, although the store-keeper is better than no one.

I have a little story to tell, to illustrate this point: I have been in the habit for some years of going once a year around a circuit that took two or three days, and would strike five or six fine villages, to sell honey, selling mostly to store-keepers at wholesale rates, and they retail at a profit. The first year they would make some effort to sell, and would sell considerable. The next year their sales would be less, and less every year. About half way round my circuit was the town of S., of about 2500 population. The first year my man there (a store-keeper) sold 800 lbs., and sold less every year, until last year he sold only 100 lbs. Now, I made up my mind that I could do better. My wife wanted to take a ride out through the country, and so we loaded up 1000 lbs. of honey in our big spring covered wagon, and started out to go around the circuit, and do our own retailing. The first day we worked two small towns and sold 700 lbs., and drove to the town of S. We got there just at dark, too late to do any peddling, so we put up for the night at a hotel.

I had a chance to talk honey to some that night. I told them I should retail the honey myself, in the morning, at 10 cts. per lb. The merchant who had been selling, charged 15 cents, he giving me 8 cents, and was not satisfied with his profits at that. In the morning I hitched up to peddle honey over the town. My wife went along to hold the horses and see the town; but just as I was hitching on my wagon, a young man about 20 years old came to me and proposed to me to go along and help me sell honey. He said he was a carpenter's son, and that they lived in that house, pointing to a big new house on a little hill. His business had been, going to school and raising berries to sell in town. He knew everybody in town, and they all knew him. I told him, "All right, come on." So I left my wife at the hotel. The young man ran home to change his clothes a little; and while he was gone I inquired about his standing for honesty, and found him first class. All whom I asked about him said he was honest. He was soon back, and we started out. I gave him the lines and told him to choose his own customers. He drove to the doctor's house first; sold some honey; then to the houses of merchants and lawyers. Everybody knew and respected him. In a very short time our 300 lbs. of honey was gone. I saved a 5-lb. pailful of honey and gave it to him. I told him to go over the whole town and take orders with the sample, and I would send him by rail all the honey he could sell. He was to sell at 10 cents, and pay me 7, and send me my part of the money when the honey was sold. He was also to send me back the empty barrels. He agreed to that and I left him. Then the good wife and I drove home. In two days I got an order from him for a barrel of honey. I sent it (370 lbs.). In less than a week he sent the money, and ordered another barrel, one 100-lb. keg and two 50-lb. kegs. We sent the honey as ordered. In about another week he sent pay, and ordered another barrel. He said he had the town pretty well sweetened up, and was going to sell to the farmers. He soon sent cash for all he had and ordered his fourth barrel, which we sent him. Now to sum up: This young man sold over 1200 lbs. of honey in about 3 weeks. His commission was over \$36.00, and that in the same town where the merchant sold last year only 100 lbs., and growled like a dog with a sore head about there being no profit in selling honey.

We have a man in a large western town who began to buy of us in 1884. He sold the first year, four or five barrels; last year he sold 18 barrels, which he bought of us. This year he expects to sell 20 or 25 barrels of honey. He has already had 12 barrels, and we are holding as much more subject to his orders. He is a bee-keeper too. Several other regular customers are buying less quantities to sell, and the most of them are increasing their sales. We find no trouble to sell all our best grades of honey, third and fourth extracting. Of the best grades we never have enough. But our dark grades, first and second extracting, which we have always had a good trade in for manufacturing purposes, goes slow this year. There has been a flood of dark honey-dew honey this year, and it is so poor that it has played the mischief with the dark-honey trade. Some of it has been sold, I am told, as low as 3 cents a pound. We have no honey-dew honey, and I am glad of it. We have some dark honey, gathered in the spring from dandelions and fruit-blossoms, which we have been selling at 5 and 6 cents by the

barrel. We never sold our darkest honey for less than 6 cents before this year. Next year perhaps we shall be asked to give the honey, pay freight, and throw in barrels. Honey is getting lower every year—poor time for beginners to set in now.

Platteville, Wis.

E. FRANCE.

Friend F., the facts you give us in the above are very valuable, and no doubt hundreds of our readers will profit by them. The point you strike on, that so many grocers never show goods till people inquire for them, is a sad fact. Even in our own lunch-room, over and over again I find certain articles I supposed would have a good sale, put under the counters, or upon the shelves, comparatively out of sight. When I inquire about them I am told there has not been any call for them. Now, I don't suppose there would be a call for strawberries, or, at least, not very much, if the groceryman should put them under the counter as soon as they are brought in. I suppose, however, we should endeavor to make the best of humanity we can, and not grumble or find fault. Your twenty-year-old lad who learned his trade by peddling honey is the sort of chap we want. Why, it just makes me feel happy to come across one of these young fellows who love work of this kind. The fact that he knew everybody in the town was greatly in his favor. —Friend F., I want to take you to task a little for your concluding words. You have no cause to complain—that is, if you are complaining. I think you may thank God also, for giving you a queen of your household who enjoys going with you on a peddling-trip. No wonder you are a big bee-man. Don't worry about low prices. God has always provided for us, and I am sure he will to the end.

A SIMPLICITY HIVE WITH BOTTOM-BAR SHORTER THAN TOP-BAR.

THE ADVANTAGES OF A HIVE MADE TO HOLD SUCH A FRAME.

THREE years ago I invented a bee-hive which I then thought was "the hive for the South." After three years of thorough test I am now prepared to explain the hive and its merits. It is nothing more than the standard Simplicity with but a little simple change, and yet this little change makes a wonderful improvement in its manipulations and usefulness. The whole thing is easily described. The little simple change referred to consists in shortening the bottom-bar of the frame so that the hive in which the frame is to fit will be just $14\frac{1}{4}$ inches square at the bottom, inside measure, while the top of the hive and frame remains the same size as the Simplicity. The frame is shaped thus:

ITS ADVANTAGES.

Any one who has ever kept bees in the South knows something about the trouble caused by the combs melting down, even with wired frames. It was to obviate this that I constructed the new hive; and any one will see at a glance, that it is practically a great improvement, as, when the

combs start to sag, it only tightens them, the bottom of the frame being smaller than the top.

Another great advantage is, that the frames are always movable. You will notice that the least upward motion of the frame will loosen any part where the bees may have filled in with comb or propolis, and the more you lift the frame up the looser it becomes. You can really hold the frame down in the hive when you shake the bees off, thus keeping them from flying so much. It is the frame for transferring, as you will notice the comb, when cut to fit tight in the frame, will rather lie against the end-bar of the frame, and thus obviate the necessity of tying the combs in. The frame gives something like a comb of a natural shape, thus doing away, to a great extent, with the lower empty corner nearly always found in the ordinary square frame. Again, this hive gives a large space on top next to the surplus box or case—not larger than the Simplicity, but larger in proportion to the rest of the hive. I have noticed it as a fact, that the bees go more readily into the surplus-boxes. You will see from the peculiar shape of the hive that it will economize the warmth in winter. There are a great many other advantages to be had in using this hive, but experience will teach better than the pen can tell. The greatest objection is, that the hive is more difficult to make than others.

Benton, La., Dec. 17, 1886. CHARLES KINGSLEY.

Friend K., the hive you mention is not new; in fact, our friends across the water both used and described the same thing by drawings quite a number of years ago. One of the difficulties is, that you can not tier the hives up, one above another; and while we admit the advantages in lifting the frames, I believe it has been generally decided that this advantage does not overbalance the disadvantages. Heddon's reversible frame has the end-bars that go only part way down, made wedge-shaped—thus accomplishing in a measure the same thing that you do. I believe your reasons for preferring such a frame are all of them sound ones; and perhaps some of our readers may prefer to use hives made in this way; but why so great a reduction as from 17½ to 14½?

BEE-LEGISLATION.

DR. MILLER STILL DEFENDS HIS POSITION.

AS I read the remarks of Z. T. Hawk, p. 944, and the queries of A. F. Stauffer on page 947, GLEANINGS, 1886, I see plainly that there is an entire misapprehension as to the scope and bearing of bee-legislation. Bro. Stauffer asks, "Why should there be a monopoly of bee-keeping, any more than of any thing else?" I do not think there should be any more monopoly of bee-keeping than of farming. Bro. Hawk objects to class legislation. In the sense in which I think he uses it, I do not want class legislation. I want just the same legislation for bee-keepers that he wants for farmers, and that farmers have had ever since the settlement of this country.

It is possibly a little unfortunate that the word "legislation" has been used, for nowadays there is so much of jobbing and dishonesty in much of the legislation that whenever any thing is not fully understood, some hidden dishonesty is suspected. Yet, do away with all legislation, and nothing but

anarchy is left, for which we are not yet ready. For my own part I believe I desire no legislation except that which shall promote the greatest good of the greatest number. Let me briefly state the basis upon which such legislation may be asked. The successful prosecution of bee-keeping may be made a source of wealth to the country, hence is for the general good. To be successfully prosecuted, it is necessary that those who embark in the business shall be reasonably secure that any outlay of time, thought, or money, shall inure to a fair extent to their own benefit. This can hardly be, unless the bee-keeper can have a certain territory secured to his own use; and as laws now stand, he can have no assurance of this, hence the need of a new law.

The editor of GLEANINGS offers a solution of the difficulty, p. 945, which, under certain circumstances, would be very satisfactory. It is, to use the spirit that actuated father Abraham in his division of the land with Lot. But, admitting that there may be an Abraham in each case, can he be sure of a Lot to deal with? It would do away with the necessity for law in nearly all, if not all cases, if everybody wanted to do exactly right. It is just because they do not want to do right, that laws are necessary. If every one were like Abraham, or even like Lot, no one would steal; but under existing circumstances would you, brother Root, advise the abrogation of the laws against stealing? Moreover, the cases are not parallel. Abraham and Lot jointly occupied the same territory; and when the territory became overstocked an amicable division was made. To make the case parallel to the one in question, suppose that Lot, a year after the division, had brought his flocks and herds, and planted himself right by Abraham, and occupied Abraham's territory, would the old patriarch have quietly submitted to this encroachment? I trow not.

Friend Hawk says, "If the professional bee-keeper is to be protected by law against the amateur," etc. The protection I ask for is for any professional or amateur, as against any other professional or amateur who may be unwise or dishonest enough to encroach upon him, the same as the law protects the professional or amateur farmer from any encroachment upon his territory. Friend Hawk thinks no grocer should have exclusive right in any given territory. Neither do I. I think a farmer should, and friend H. thinks so most emphatically, as he says, "I certainly should resent any law that would sell to him any right whatever in regard to my farm." Why should the farmer have what he is pleased to call class legislation, and not the grocer? Because the grocer can carry on his business to his entire satisfaction with the ground covered only by his building. Limit him to a lot 30 feet square, and he may do a business of \$500 or \$500,000 per year, dependent entirely upon other things than the ground he occupies. Plant right beside him another grocer, with the same territory, and even the same capital, and one may do ten times as much business as the other, and this competition is really a necessary thing for the general good. With the farmer (as with the bee-keeper) the case is different. Take from him the exclusive control of a definite territory, and he ceases farming. His business can not be carried on without the control of that territory, and competition in his case comes in when his products are put upon

the market. Friend Hawk, don't you see that the case of the bee-keeper is like that of the farmer, and not the grocer?

Friend Stauffer, p. 947, asks if I would prevent, by law, farmers from keeping bees on their own land. I know that this will present itself as a difficulty to the minds of many. In general, the farmer has a right to do as he pleases with and on his own land; but that right must always yield to the general good, if necessary. A farmer may object to a railroad passing through his land, but if it is thought best for the general good, the railroad goes through in spite of his wishes. Between my home and the village a man erected a slaughter-house. It was on his own land, where he had a right to do as he pleased, but the slaughter-house in that location was deemed not best for the general good, and in spite of his own wishes he was obliged to take it down. I may think I can keep what plants I please on my own land; but if I attempt to raise a crop of Canada thistles I find myself mistaken. So if it be for the general good that there be encouragement to have all the nectar gathered, and to have the benefit of the bees in the fertilization of flowers, it may be the right thing to re-district the land for bee-keepers, somewhat as it was districted for farmers.

Marengo, Ill., Dec. 15, 1886.

C. C. MILLER.

BOOK AGENTS, AND AGENTS IN GENERAL.

HAS GLEANINGS BEEN TOO SEVERE ON THIS CLASS OF PEOPLE?

I THINK you are too severe on book agents. I think and know they may often do a great deal of good—are real missionaries. Many people, especially farmers, would buy but few books, except they were brought to their homes and offered for sale. Sometimes they are pressed to buy. The book is bought; and if a good one, it is a lifelong treasure to that family. I can see no reason why a book agent may not be a gentleman or a lady as well in that, calling as elsewhere, or why it is any worse to sell a book than to sell honey. Our Bible Society sends out agents.

SARAH J. W. AXTELL.

Roseville, Ills., Dec. 7, 1886.

To begin with, I am a reader of and subscriber to GLEANINGS. I should not like to be without it; but when I tell you I am, have been, and always expect to be, a "book agent," Ernest will feel like bumping a hive of hybrids to get rid of me, and you, Mr. Root, will feel like turning the "moral" in Mahala B. Chaddock's article (page 940, Dec. 1), with full force against me. But, as Mrs. Chaddock says, "there is lots of human nature in folks." I find, also, there may be lots of selfishness in folks. Now, let us examine a few articles in GLEANINGS that relate to agents.

On page 917, Nov. 15, A. I. Root throws out some very strong inducements for an agent for GLEANINGS at every postoffice. That is good so far, as I think that, if everybody read GLEANINGS we should not have to contend with so much ignorance in getting rid of our honey; besides, people would be benefited in many other ways.

But Ernest, on page 915 of same issue, takes some steps in advance of his father (which boys are likely to in these days), and tells us how to get rid of

any kind of agents. Now, suppose I should take the above number of GLEANINGS and go to one man of one postoffice, and, after trying to show him that the work was of special benefit to him, and failed, I should turn to page 915 and tell him there was an article that was worth a year's subscription. What would the man think? He would certainly be led to think an agent was something that *must* be got rid of, even if deception had to be resorted to. Now, Mr. Root, is it a *moral* fact that book agents are not needed in any community? If so, what a needless amount of time, means, and talents are expended by Bible (book) agents, and those who support them! Now, I will ask a few questions: What harm is there in taking a *good* book on any legitimate business, and trying to sell it to those who will be benefited by it? Is there any more harm in my taking the Story of the Bible to a person, and try to show him that his family will be bettered by having that book and reading it, than there is in your telling them so through GLEANINGS, as well as of the 95 other books you seem to be agent for?

I admit there are *dishonest* book agents; and what calling in life is there that does not have dishonest agents? Why are the American people so intelligent on so many subjects? Is it not because they read? How could some of our very best books be got before the people if it were not for traveling agents? Christ says the children of this world have become wiser in their generation than the children of light. The powers of darkness are flooding the world with their pernicious and soul-destroying books and papers; and shall the children of light (or children who ought to be children of light) quietly sit down and tell people how to get rid of book agents? or shall we try to present to the people the true light and work in a Christian manner with Christian spirit, with perseverance to do so?

2—T. D. WALLER, 37—83.

Port Andrew, Wis., Dec. 5, 1886.

Many thanks, dear friends, for your kind rebuke, and especially for the way in which it is given. There is, however, justice and truth on both sides of this question; but I see now that I have been altogether too sweeping, and I beg pardon. I did not mean, however, in my remarks to object to having anybody go to a neighbor's or acquaintance's. I am always glad to see a Medina man with any thing he may have to sell, provided he excuses me when I pleasantly tell him I don't want what he has for sale; and when I speak of having some one in every neighborhood act as agent for GLEANINGS I took it for granted he would go to only those with whom he is acquainted, and who would regard him as a neighbor. Most people will be quite willing to stop and listen to one with whom they are somewhat acquainted, when they would not feel pleasantly at all to be interrupted by an entire stranger, such as those who travel from house to house must necessarily be. The bee-keepers who get mail at one postoffice are almost invariably more or less acquainted with each other. The same would apply in regard to selling honey; and if I thought that any thing that has ever been said in GLEANINGS in regard to developing your home market meant that you should, by importunity and such behavior as we often meet in *book* agents, induce any-

body to buy honey they did not want, I should by all means object. There are, without doubt, two sides to this matter; but the wrong I had in mind is indeed a grievous one, and many can bear me out in saying so. I mean, overpersuading people against their better judgment. In our establishment, younger people who have not judgment and discretion have been persuaded again and again into buying books at extravagant prices when they hadn't the wherewith to pay their honest debts. A young married man was induced to buy the *Life of Grant*, when he ought not to have bought it. The same agent wanted to sell him another book, but I objected, because the young man was out in the field working *on my time*. The young man told me afterward that he was very glad I did so, for he was so much in need of money that he very much regretted having made the former purchase. Books sold by agents, so far as I know, are sold at extravagant prices, and at extravagant profits. Those who sell books, or take subscriptions for bee-journals, are satisfied with a profit of from 10 to 25 per cent; but book agents often make 100 per cent or more. In regard to religious books sold by colporteurs, I think this is indeed praiseworthy, and they ought to be encouraged; but the profits in this business are so small that a scheming and unprincipled man would never think of going into it.

The waste of time that it takes to listen to a book agent, when you don't want what he has to sell, is, to my mind, one of the greatest objections. However, you have a right to stop and listen, if you choose—that is, when you are working on your own time; but if you are working by the hour for somebody else, I do not think you have a right to stop your work and look at a book. In our establishment we have had to make very stringent rules, because of this kind of work. One lady book agent argued the matter with me quite at length. When I told her that the proper place to see our people was at their homes, outside of working hours, she replied, "But just think how much trouble it would make me to go around to all of them at their homes, compared with seeing them all together here at once." I did not tell her about the boys and the frogs, but it seemed to me that what was rare fun for her was death to—my pocket-book. If you want to sell honey, get subscriptions for *GLEANINGS*, or sell *A B C* books, don't, I beg of you, go to people who are working by the hour for somebody else, and interrupt them during their work. What Ernest put in in reference to the insurance agent was intended as a joke; but I am free to confess now, that I felt somewhat pained when I found it in print. A bee sting is, to many people, a serious matter, and we have no right to give pain to any one, especially any thing that is so excruciating as the pain of a bee-sting, either in jest or earnest. I now remember that several jokes of this kind have appeared in *GLEANINGS*, and I thank friend Waller for calling my attention to it. One who professes to follow Christ should never perpetrate jokes, nor have fun when it will give pain to a fellow-being, even if this

fellow-being has been importunate to the extent of being troublesome. There is nothing in this world that is so much to be admired as simple, frank honesty and sincerity in all our deal and in all our differences.

Friend W. strikes on another point in his remarks. I would not advise anybody to undertake to exhort a man in regard to his soul's salvation, even (without the employer's sanction), while he is employed by some one else, and while this some one else has bought and paid for his undivided time and attention. I think the cause of Christ would be furthered, many times, by remembering things of this kind. Choose a proper time and fitting opportunity, and don't say too much, remembering that the Scripture says, "Words fitly spoken are like apples of gold set in pictures of silver."

BEEES VS. BEAVERS.

A New Office for the Bee-Sting, from the *Scientific American*.

W. F. CLARKE'S NEW THEORY OF THE STING DISCUSSED.

IN order that our readers may better understand the purport of the following article from D. F. Savage, we clip from the *Scientific American*, under date of Dec. 4, page 353, the item to which our friend takes exceptions. The writer questions the scientific accuracy in such a pleasant manner that we feel that our old friend, W. F. Clarke, will not take it unkindly.

A new champion has arisen to defend the honey-bee from the obloquy under which it has always rested. Mr. Wm. F. Clarke, of Canada, claims to have discovered, from repeated observations, that the most important function of the bee's sting is not stinging. In a recent article he says:

My observations and reflections have convinced me that the most important office of the bee-sting is that which is performed in doing the artistic cell work, capping the comb, and infusing the formic acid by means of which honey receives its keeping qualities. As I said at Detroit, the sting is really a skillfully contrived little trowel, with which the bee finishes off and caps the cells when they are filled brimful of honey. This explains why honey extracted before it is capped over does not keep well. The formic acid has not been injected into it. This is done in the very act of putting the last touches on the cell work. As the little plant trowel is worked to and fro with such dexterity, the darts, of which there are two, pierce the plastic cell surface, and leave the nectar beneath its tiny drops of the fluid which makes it keep well. This is the "art preservative" of honey. A most wonderful provision of nature, truly! Herein we see that the sting and the poison-bag, with which so many of us would like to dispense, are essential to the storage of our coveted product, and that without them the beautiful comb honey of commerce would be a thing unknown.

MR. SAVAGE'S COMMENTS ON THE SAME.

Here is a strange theory of the uses of the sting of bees in slicking off the cappings of cells, and injecting therein a portion of formic acid, so that the honey may keep the better. The idea seems to be put forth in all seriousness, that the most important function of the sting is exercised within the hive, and that its occasional employment outside is only an incident or an accident. I find it in the *Scientific American*, purporting to be the substance of an article by Wm. F. Clarke, of Canada, who, it appears, made some statements on the subject at Detroit. Now, I wish to know whether any company

of bee-keepers would receive, without question, such speculations. If Bro. Clarke merely *supposes* that the bees deliberately, and in cold blood, use their stings in this way, *we* suppose that they do nothing of the sort, and one supposition is as good as another — perhaps better. He, however, claims to have come to this conclusion by repeated observations. But has he really seen the bees doing that? Does the bee, like the beaver, use the tail for a trowel? Is the latter end indeed the “business end”? There are several implements at the other end, far better adapted for smoothing and finishing off their work. I have many times witnessed, through the glass of my observing hive, the process of storing honey in cells, and capping the same with mandibles and tongue. It seems to be done in a quiet, leisurely, happy way, with no trace of anger or excitement such as invariably accompanies the darting-forth of the sting with a tiny drop of poison on the barb; for the least knock or jar is answered by a sharp yelp of resentment, and many bees are seen to spread their banners, and thrust out their weapons; but those engaged in feeding larvæ or storing honey, or comb-building, and those just coming in laden with pollen and nectar, take little notice of the disturbance, and their stings are not unsheathed. No doubt, at such a time of alarm some poison is scattered on the combs and into the honey, as Langstroth and others have remarked; and if a hive is often disturbed the honey may become very highly seasoned. We have always supposed that the unsealed honey would receive this sprinkling, not that which was sealed or nearly so. Now, Ernest, look up the authorities and see what they say concerning formic acid in honey — whether all honey contains it originally; whether it is added unconsciously while the honey is in the honey-sack, or as it is deposited in the cell, or whether it is designedly and barbarously infused at the end by the bees in order to give their plunderers the stomach-ache when they eat the stolen sweets. Does sealed honey contain much formic acid, or more than unsealed or evaporated or extracted honey? Is it the presence of the acid or the absence of air that preserves the honey? The scientists have studied these subjects, but I know not how far their conclusions will go to support the theory of Bro. Clarke; nor does it matter, unless he has really seen the thing done, as he would have us believe. In that case he has made a wonderful discovery indeed, of something wholly out of harmony with all that we have been taught and have observed concerning the habits and constitution of the bee, and the mechanism of its sting. The valiant warrior's poisoned lance has become the peaceful laborer's implement; spears are pruning-hooks, swords are plowshares, poniards are pitchforks, tomahawks are trowels. Truly, the millennium is nigh.

It would be difficult to remove the impressions that most of us have concerning the sweet satisfaction and exceeding joy of the bees in all their unmolested avocations at home and abroad; their reluctance to quarrel when honey is plentiful and they are full; their whole demeanor, so different from the irascibility displayed at other times. Friend Clarke, in his closing paragraph, discourses finely of their natural quietness, industry, and peaceableness, and in a strain that seems inconsistent with his idea that an instrument so “skillfully contrived” for offense and defense, yet general-

ly kept out of sight, but prompt to appear on slight disturbance, and that, too, with astonishing immediate effects on the community, the mere taint of the venom on the skin or clothing, or even in the air, being sufficient to awaken instant enmity and provoke a swift attack from multitudes — that such apparatus, with the feelings of displeasure, resentment, and wild fury that are inseparable from its use out of doors, should be plied so placidly and constantly within the hive.

It ill becomes a bee-keeper of prominence to add to the wild vagaries that prevailed in the former days of ignorance, and that still are held by many otherwise intelligent people. Most of the readers of such a paper as the *Scientific American*, no doubt, still suppose that bees are simply a spiteful and dangerous nuisance; and though the article referred to may enlighten and comfort them on that point, will it not create a fresh terror and panic in the minds of those who have always been hasty to believe that all bee-keepers and honey-dealers wickedly adulterate their products, and who now behold a more dangerous evil brought to light, not by an ignominious, but by a bee-master who ought to know, the fact that honey is evermore unsafe, since it is poisoned by the bees themselves at the fountain-head.

D. F. SAVAGE.

Casky, Ky., Dec. 8, 1886.

Friend Clarke says the sting is “a skillfully contrived little trowel.” My researches with the microscope, however, during past years lead me to different conclusions. All the stings I have ever examined resemble a miniature awl, made up of three smaller ones, two of which are barbed. The three are held together by grooves, “skillfully contrived” so as to pierce the skin by a sort of pumping motion. A sting may be so mounted on a glass slide in balsam as to appear a little flat. Other specimens are in danger of being perverted from their natural shape after being mounted, I find; but a sting in its normal condition, before being mounted (unless my Bausch & Lomb objective and Coddington lens are very much at fault) is simply a fine-pointed instrument like a cambric needle. As to the office of the sting curing honey or capping the cells, I have nothing to say, either pro or con.

ERNEST

HOW TO HAVE GRAPES CONVENIENT FOR BAGGING.

ALSO HOW TO GET EARLIER AND BETTER GRAPES ON THE MARKET THAN ANYBODY ELSE.

READING your article on covering bunches of grapes with paper, reminded me of what I learned about raising grapes fifteen years ago. I had in view, changing my business and trying what I could do with bees and grapes. I thought that I understood bees well enough, but was not quite so sure on grapes. So I made a trip of observation, starting at Kelley's Island, and then down the coast of Lake Erie to Buffalo. Not finding anything new I went on to Geneva, N. Y.; and on the east shore of Seneca Lake I there found the first man who knew more than I did about the business. Then I found a vineyard of Catawba grapes ripe enough to go to

market; and right over a stone fence, on the same kind of soil, the grapes were at least ten days later. What I wanted to learn was, how this was brought about. Going to the house I inquired for the proprietor, and was informed that he had gone to the lake with a load of grapes for New York city. I was invited to take a seat, or, if I preferred, go into the vineyard and look around. As this suited me best, I went out and took a look at the grapes. At that time I thought it the grandest sight I had ever seen. The vines were all healthy, and of uniform growth. Every bunch of grapes hung free and clear from any obstruction. All were good fair-sized bunches—not a small bunch in the vineyard. If he had desired to use paper bags, every bunch in the yard could have been covered.

I went back to the house and met the man, just returned from the lake, and told him I had come all the way from Michigan to learn how to raise grapes. He said he was always glad to see any one who was willing to learn. He had tried to teach his neighbors, but found they thought they knew as much (or more) than he did, so he went his own way, but year after year sold his grapes for five or six times as much as his neighbors. He had call for all he could raise, at from 25 to 30 cts. a pound, while they sold for from $3\frac{1}{2}$ to $4\frac{1}{2}$. He averaged as many pounds per acre as they did. All the additional expense he had more than they was in picking off all the small bunches soon after they had set, and freeing each bunch from all obstruction, so that it would grow in the most graceful shape.

He commenced in the spring to cultivate the soil once in ten days with a weighted cultivator, going as deep as he could, and going less deep as the season advanced, until the first of August, when cultivation ceased, except to pull up any weeds that made their appearance. The summer pruning consisted mostly in seeing that three or four vigorous canes were grown, on which to raise the next year's crop. In the fall, after frost, the vines were trimmed, and the canes left for fruiting were left to lie on the ground until spring. As soon as warm weather commenced in the spring, the vines were tied to the trellis, and cultivation commenced.

The point he most emphasized was, to raise all the fruit on large and vigorous canes, as the fruit would be larger and earlier than on weak canes; then the early and constant cultivation until about a month before ripening, and picking off all the small bunches, and straightening out all that remained, so that they would grow in the best shape for market. When placed in market the grapes sold themselves. His motto was, "Have the best that can be raised, and a few days before somebody else gets them."

L. C. WHITING.

East Saginaw, Mich.

Friend W., your communication is a most excellent one, not only for bee-keepers, but for grape-growers also. I really believe the plan you give will work almost every time, from what experience I have had with grapes. Bagging such clusters as you mention would be but a small job comparatively, and it would end the troubles among the bee-men and grape-men. The grapes around our bee-hives have improved just in proportion to the attention we have given them, and it is right in the line of your suggestions.

OUR HONEY-MARKET.

FRIEND HEDDON'S VIEWS IN REGARD TO HONEY BECOMING A STAPLE PRODUCT.

I AM glad to note friend Dadant's kind and encouraging article on page 981—none the less so because he controverts ideas of which I am convicted, especially when it is one I do not cherish. I would that friend D. were right, and I wrong; but even after reading his article I can not see it that way.

For 28 years have we been producing and introducing extracted honey, and during all this time friend D. and his class have been talking about its becoming a staple when we get it fairly introduced, and the price becomes a little lower. Well, it is now so low that those less fitted to survive at the business are "freezing out," and those best fitted to survive, calling for organized effort to stop any further slaughter in prices by all known methods, outside of the general influence of supply and demand. After all this "introducing," don't you think our people and our product ought to be somewhat acquainted with each other? Fifteen years ago I said, and to-day repeat, that it is my opinion that honey will never become a staple commodity, nor even a staple luxury, like oysters, etc. Cane-sugar syrup is a staple, or standard sweet, and at the same price would many times outsell honey, for the following reasons: First, it is two or three fold sweeter, increasing its worth for sweetening purposes precisely in the same ratio. Second, it possesses uniformity of character—a feature which enables creamery butter to command a price double that of the best roll butter, equally good. Third, I doubt if there is any honey of any color, flavor, or consistency that "wears" with the human appetite as does cane syrup. I am sorry I can not, but I do not believe that friend Muth nor any one else can work up any lasting or increasing demand for honey for purposes of cookery.

I know there are "many children who have never tasted honey," and that, too, children of those who have money enough to, and do, indulge in every luxury, notwithstanding the commodity is so very, very ancient. These children would have tasted it long ago, and many times, had it been any thing like a staple with their parents. There are too many well-to-do people who do not wish to eat it, at any price.

Yes, we have 14 grocery-stores, every one of which is well stocked with honey, 10 of which keep none except my own. This isn't all: I attend to it that they keep the jars and crates conspicuously in sight—as a rule, right on the counter. I have found, by so doing, sales are increased about three-fold. This is the strongest evidence that the article is a luxurious luxury, being as far from a "staple" as can be. It shows that, among people who are able to buy it at almost any price, they think of it rarely, except when they see it. We have cut the price in two in the middle, once, since I have been in the business, and we don't sell any more now than we did before; and if to-morrow morning we should cut it in two again, and thoroughly advertise the cut, people would say, "Did you ever?" and for a little time sales would be lively at these ruinous prices, and finally we should hear exclamations like this: "Well, I declare! after all I don't believe I like honey any better, if as well, as that nice golden syrup, and I know I don't on buckwheat cakes."

We should then find that we had caused a large number of people to conceive, for the first time, that they had many times purchased honey in preference to syrup, from no other cause than that it cost more.

I am sorry, but this is just what I believe. You told us years ago, that when honey came down to the present price there would be no end to the demand. I told you, no; nothing would stop the downward tendency of prices except lessening the production, which would come of necessity, when the weakest of us began to starve out. Well, we have reached the point, and no more honey is consumed in Dowagiac than was consumed fifteen years ago, and producers are going to hold a convention to do all that united effort can do to hold up prices, the same as is done by other classes of manufacturers.

Nearly every article of manufacture in a hardware store is sold at prices fixed by a pool. Go to your hardware store and inquire, and take a hint in time. True, honey is a product; but the method we employ to gather it and our processes in preparing it for market, rightfully class us as manufacturers, not producers.

No, no one has worked harder than I to create local demand, and Prof. McLain or any one else, acquainted with the facts, will tell you that no honey excels ours in this northern climate, and under our care of production, and we never retail any but the white, A No. 1 grades.

I agree with friend Dadant, that the *specialist* in bee-keeping will be hardly more apt to quit his calling than the farmer. But the way the small ones will drop out in the near future will, I think, be highly worthy of his notice. One peculiar fact about the farm is, that it makes a home, and supplies the greater part of a living; in fact, the whole of a possible living, whether there is any such thing as money or not, to say nothing about "prices." I have more than \$5000 invested in honey-producing, and I could not exchange it even, for any \$2000 farm in this county. I presume that the farmer whom friend Root mentions in his foot-notes had been dabbling with bees or some other side issue.

I think friend Dadant is mistaken in saying I follow his methods in producing extracted honey. So far as they are laid down in his excellent little pamphlet, many of them coincide with the methods I first adopted, sixteen years ago; but he is mistaken, and you were also, in your foot-notes to my last communication, in thinking that I continue tiering, and do not extract till the close of the surplus season. My bees gather too much honey for that, and we keep our clover, basswood, and amber grades separate.

I believe Mr. Dadant has not yet learned the value of the slatted, break-joint honey-board, shorn of which I would feel like giving up the production of both comb and extracted honey. It is against my wishes and likewise my interest in some directions, to state my convictions as above; but when drawn out upon any subject, I mean to stand by my old rule of making such statements in "the now," as I think will be verified in the future.

In closing this article I feel it an obligation and pleasure to thank friends Hutchinson and Harmon Smith for their able and instructive articles in last issue. I feel that I have profited much by both.

Dowagiac, Mich.

JAMES HEDDON.

Friend H., I agree with you to a certain extent in most of your statements, but I hope you will excuse me for saying I think you put it a little too strongly throughout almost all of your article. As an illustration, I know that many of the articles in hardware stores are sold at a regular and uniform price, while other things, and things which are staple, are sold at prices that differ very widely by different manufacturers. It is true, the *Iron Age* publishes regularly an alphabetical list of the staple hardware goods; and it also gives the prevailing discount; and this discount applies to factories north, south, east, and west. Associations are formed, but they are being constantly broken. The combination on tinware stood, I think, three or four years at one time; but in their anxiety to get orders, certain manufacturers began cutting under on the sly, and pretty soon the combination went to pieces. I still think our best way of keeping prices up on honey is to buy out the small producers before they have had a chance to run their product on to the market. It may be true, that no more honey is sold now with the present low prices than was sold before, when prices were high. But the times demand low prices on almost every thing; and what is true of honey is also true of almost all farm and rural products. Cane-sugar syrup is some sweeter than honey, if I am correctly informed, but not two or three fold sweeter. Suppose Prof. Cook straighten us out on this. And granting that it is sweeter, is it worth so much more for food? A pound of sugar may be cheaper than a pound of strawberries; but who is going to take the sugar, even if it is sweeter? Perhaps you do not call strawberries a staple; but with the tremendous trade that seems to be constantly increasing in them, I should call them a magnificent staple. Let us not waste time in arguing, when we simply have a different understanding of a certain word. The point before us is to understand how to get the most money out of the products of our industry.

AN A B C SCHOLAR'S REPORT.

A FARMER'S VIEW OF THE QUESTION—LEGISLATION FOR BEE-KEEPERS.

JUNE 28, 1884, found me in possession of a newly hived swarm of bees. They were a present to me. That swarm gathered 49 lbs. of surplus that year, and had ample stores for winter.

The spring of 1885 found them in moderately weak condition. I lifted the frames and bees out of their hive, and put them in a new clean one; and during the process I found the queen, the first I had ever seen. Being a beginner, I of course felt proud of this.

On the 9th of last June I traded a hive filled with comb, containing considerable honey, for a first swarm of bees. This swarm I call No. 2. My old swarm I call No. 1. On the 13th of June it cast a large swarm, which I call No. 3. I waited $7\frac{1}{2}$ days after this swarm issued, and then cut all queen-cells from No. 1, as per Doolittle in his review of your A B C book. It was my first experience, and proved a success. I had never even seen a queen-cell before.

No. 1 produced 155 sections. No. 2 produced 84 lbs. in boxes. No. 3 produced 135 sections.

The sections were part 1 $\frac{1}{4}$ inch and part 1 $\frac{1}{2}$ inch wide, and I use separators, so they fall considerably short of 1 lb. each in weight. But reckoning them at $\frac{3}{4}$ lb. each, they make an aggregate of 300 lbs. for the three swarms.

LEGISLATION FOR FARMERS.

I am a farmer, and have undertaken to keep bees for honey for home use; but what am I to do with it all, when the bees pile it up like this? There has been some complaint about the farmer selling honey so low that the market of the apiarist is being demoralized. Some have intimated that legislation in favor of the bee-keeper is needed. I for one would be very willing to give up my bees, could we farmers have a little legislation in our favor that would enable us to get prices, say about double what we are now getting for our farm produce. I think it quite probable that the lowest price at which any farmer ever sold honey is no lower in proportion than those at which he is obliged to sell his horses, cattle, hogs, grain, potatoes, etc. I plead guilty to having parted with 10 $\frac{1}{2}$ lbs. net honey at 12 $\frac{1}{2}$ cts. per lb., cash, and 60 sections at 11 cts. each in trade, and it was no easy matter to dispose of it, even at these figures. E. H. WHITAKER.

Peru, Ill., Nov. 27, 1886.

HOW MUCH ROOM DO THE BEES NEED FOR BROOD AND POLLEN?

IF CROWDED, IS THERE DANGER OF PUSHING THE POLLEN INTO THE SURPLUS RECEPTACLES?

MR. ROOT:—On page 94, GLEANINGS for 1885, Mr. Doolittle says: "I use six Gallup frames of comb (equal to 5 L. frames) for the very largest swarms, while others have but 4 or 5," etc. In an Oct. No. of the *American Rural Home*, of 1886, he also says: "Queens, as a rule, will not occupy more than 800 square inches of comb with brood, for any length of time," and, further along, "In order not to get any pollen in our boxes, we will allow 200 square inches of comb for that, and the little honey they always have in the upper corners of the frames, above the 800 the queen occupies." If it requires 800 to hold the brood, where will the pollen go to, when we hive our very largest swarms on 6 Gallup (or 5 L.) frames, which give but 725 square inches of comb? Is there no danger of the queen entering the sections, where side storing is practiced? or if we use dummies to contract the brood-nest, will they not swarm as soon as the queen fills the combs with brood? In hiving swarms on empty frames, according to W. Z. Hutchinson, where will the pollen go to that some of the bees of the swarm are carrying, at the time of hiving? As there are no cells below in which to place it, will it not be left in the sections, if they are supplied with full sheets of foundation or comb? I think there is pollen enough carried thus in one swarm to spoil a large number of sections, if it is put in them. How many pound sections should be given a large swarm, hived on 5 L. empty frames, or frames of comb in a good honey-flow? A little explanation of this subject would prove acceptable to me, at least.

(Ogden, N. Y.)

M. E. GRIDLEY.

AN EXPLANATION BY G. M. DOOLITTLE.

Some of the readers of GLEANINGS do not seem

to understand why it is that I should recommend a hive holding 1000 square inches of comb surface, as the right size for a brood-chamber, and then hive swarms in a hive so contracted that there is only enough room for less than 700 square inches of comb surface in it. To best explain, I will give the reader a little view of brood-rearing as I find it in this locality, after careful experiments which I have conducted for years. One queen lays all the eggs which are to become the future bees for honey or otherwise. These eggs hatch in three days, so that a small larva takes the place of the egg; this larva is fed on chyme for six days, during which it has grown from a mere speck so as to nearly fill the cell, at which time the cell is capped over. During the next twelve days this larva passes through the transformation process "from caterpillar to butterfly," and at the end of that time comes out of the cell a perfect bee, making a period of 21 days in all from the time the queen lays the egg till the bee bites off the covering to its cell. Very warm weather hastens the process of development during all the stages, and steady cool weather retards it, so that I have known the period to be shortened to about 18 days and lengthened to nearly 24, but 21 is the rule. Now, the Creator of all things designed that bees should "multiply and replenish the earth," the same as all animated things, so gave them as strong instinct to prepare for swarming as we see manifested in birds to build nests wherein to lay their eggs and rear their young. This instinct causes the queen to greatly enlarge the circle of the brood during May and June, so that, when the height of her ambition is reached (from June 10th to 20th), she lays from 2000 to 3000 eggs daily.

From experiments conducted along another line I find that, at this season of the year, some of the worker-bees, in a colony being in a normal condition, exceed 45 days as to length of life; so as the time, 21 days (from the egg to the perfect bee) is 45 days (the life of the bee at this season) we can find the reason for swarming, through the crowding of the hive. It will be seen that the queen can get 2 1-7 generations of bees on the stage of action, to where one dies off; hence comes swarming, with both bees and queen bending every energy in that direction. Swarming accomplished, the same instinct that causes the birds in midsummer to cease building nests, and prepare for a journey south in early fall, seizes hold of both bees and queen, the bees bending every energy toward getting a supply of food sufficient to carry them over winter, while the queen keeps "pace" by laying only enough eggs to keep good the population of the hive.

From this understanding of the inside workings of the hive I drew these conclusions: First, that up to time of swarming I desired a brood-chamber of the size occupied by the average queen, plus the pollen room necessary for the brood. Careful experiments gave this as 1000 square inches of comb, or 9 Gallup frames. Second, desire for swarming gratified; two-thirds of the room needed before is now amply sufficient to keep the population of the hive good, and care for the less amount of pollen now required. Besides, with the desire for less brood, pollen is gathered in far less quantities, so it is a rare thing for me to find half as much pollen in the combs surrounding the brood at this season of the year as I do in May; hence it is not often I get any pollen in sections. Again, the bees gather

no pollen, as I conclude, from basswood, which gives us our main honey-crop; for I have watched for hours at basswood-trees to find a bee with pollen on its legs. When white clover gives the main crop of surplus honey, this contraction system may give some pollen in the sections; yet I think that, if used on the above plan, not enough to do much damage. What we all should strive after, if we would be successful, is to let the bees carry out their natural instincts as much as possible, and at the same time turn those instincts to the best possible advantage for ourselves. In the above I think I have made it plain how it can be done. Herein, also, lies one of the reasons why I prefer the Italian bee to any of the others. All know that, after swarming, they show a greater desire to retrench in brood-rearing than any other race of bees, and at the same time gather unlimited quantities of honey. With the above management I throw all the early honey into the sections, while later, when the honey is of inferior color, I get enough stored in this $\frac{3}{4}$ -sized brood-chamber for winter.

One other item: Some seem to suppose that the bees seen in a swarm having pollen on their legs are bound to store this in the hive somewhere, and that, if treated *a la* Hutchinson, by using empty frames below, said pollen must go into the sections. This, I think, is a mistake; for as far as my experience goes it is "scuffed off" and thrown out at the entrance. I know it is, where the swarm is hived in an entirely empty hive, for the bees have no place to put it till comb is built, and no use for it during the first three days in any event, unless a frame of brood is inserted by the apiarist.

Borodino, N. Y.

G. M. DOOLITTLE.

OPEN OR CLOSED TOP SECTIONS.

IS THERE ANY PARTICULAR NEED OF MAKING THEM WITH CLOSED TOPS.

INASMUCH as considerable discussion and some hard feelings have resulted because we have sometimes sent open sections when our customers wanted those with closed tops, "*but forgot to say so*," we have thought best to copy the following from the A. B. J. It gives the opinion of many of our prominent honey-producers:

QUERY No. 351. "A bee-keeper in Iowa prefers closed-top sections, but in tiering up he uses open-top sections. Is it an advantage to have the first case and the one on top made thus? and will the combs (of course they can not be inverted) be as straight with closed-top sections?" Augusta, Iowa.

I see no advantage in closed-top sections anywhere.—W. Z. HUTCHINSON.

It is a disadvantage to have two sorts of sections on the same hive.—J. P. H. BROWN.

We should prefer open-top sections for every purpose.—DADANT & SON.

The combs will be just as straight with closed top as open, if you use full sheets of foundation or separators. I prefer an open-top section, as I want to "tier up."—H. D. CUTTING.

I use open-top sections, and can see no advantage in those having closed tops.—G. M. DOOLITTLE.

I should not expect combs to be quite as straight with closed-top sections, but I have never tried them.—C. C. MILLER.

I should always prefer the open-top sections. This permits tiering up, and enables one to see just what is going on.—A. J. COOK.

Closed-top sections are no advantage, as they can be made *closer* with a cloth spread over the top of the case or rack. The open-top sections are necessary to the tiering-up system, and the latter is necessary for the best results.—G. W. DEMAREE.

Never use both kinds on the same hive, or in the same apiary; in fact, never use closed-top sections at all. They are not good about getting straight combs, tiering up, handling in and out of shipping-crates, seeing the condition of the super, and so bad that they are almost totally abandoned.—JAMES HEDDON.

The combs will be built as straight with closed-top sections as with open-top ones, but the former have no advantages over the latter. I prefer a thin board with a bee-space beneath to cover the sections. Many use enameled cloth.—G. L. TINKER.

I do not think there is any advantage in using closed-top sections in any case. Open-top sections can be easily closed, but closed-top sections can not be used in "tiering up." I prefer the open-all-around sections.—J. E. POND, JR.

Several times, right in the height of the honey season, we have had customers who have declared they could not or would not use open tops. I suggested they cover the openings with wood, or some equivalent, and some of them refused to do even that. If there is another side to the question, we shall be glad to hear it; but some of the evidence must be quite conclusive.

OUR P. BENSON LETTER.

Introductory Chapter.

BEE-KEEPIN IN THE HIEST STILE.

INEVITABEL accumpennymment of troo grate-ness is modesty. That's why I am so moddest. Bein the gratest of all livin or ded apearists, mi extreme modesty prevents mi alloodin to it, hents I never say enny thing about it. But moddest as I am I feel it mi dooty to instruct the risin Jennyrat in the topick of keepin bees. If they cood all cum to me it woud be better, for I cood lern them how to keep bees in 6 short lessons without a master. It woud be much to their advantage to take lessons from the gratest sighestist in apiculturalist bee-keepin, whitch I am him. But I ken giv mutch valyouable gnawledge throo instruxion in a bee jearnal. The bee is divided in 3 parts: drones workers and kings. The drones lays the eggs. The workers makes the hunny under the direxion of the Kings whitch bosses the whole job. Layin eggs is very exostive, on whitch account the drones doant last long and generly giv out sum time in the ottem or fall of the year. When the drones dy off, the workers stop makin hunny and then eat up all the hunny by next spring. If the drones diddent dy off in ottem, the wurkers woud maik hunny all winter. I am gitting up a breed of a noo strain, whitch thair drones doant dy off so soon, and these will be moast prolifick hunny makers. Orders filled in rotashen. Satisfaxion garn-teed to enny reezenable extent, and if ennybuddy issent satisfide he ken return the munny to me.

The bee is a soshel community and never lives seppereight, 1 in a place. Some people is gilty of this, but not bees. A bee ollwaze lives in a hive and sum times in a hollough tree. A squrl also lives in a hollough tree but his tale is much more ornamental than the bee. The bee hezzent got enny tale, only just a sting. The sting is very pennytrativ in kar-riker. Moastly it gits sore whair the sting penny-trates. The bee is a verry akomodating little brute, for when it stings it ollwaze leaves its stinger in, soze to mark the place soze yule kno whair to scratch.

P. BENSON A. B. S.

(whitch the A. B. S. it stands for Apiculturalistal Beekeepin Sighestist.)

We are pleased to tell our readers that we have made an engagement with Mr. P. Benson for a series of articles on bee culture. Mr. Benson has, for many years, been resting from his arduous labors; but some of our older readers may have heard of him as a teacher of music. Since he has determined to direct his powerful intellect in the direction of bee culture, we may expect something bewildering and astonishing before he gets through.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HONEY, BITTER, FROM CHESTNUT-BLOOM.

I HAVE read in GLEANINGS several times about bitter honey. I will tell your readers the trouble I had with bitter honey, and from where it was gathered, in the summer of 1885. I found that my bees were storing some very dark honey, and I found, on tasting it, that it had a very bitter taste; so the next day I sallied out to find out what they were working on. I followed the direction they flew, and found them working hard on chestnut-blossoms. I broke off a bunch, and found they smelled like the new honey, and tasted like that which the bees had stored in the hive. Then I knew it was chestnut honey I was getting in the sections. It is very dark. I got that year over 68 lbs. in the sections. I thought may be by age it would come all right, but it never was eatable—always a rank smell and bitter taste. I accordingly uncapped nearly all of it and placed the sections on top of the frames, and let the bees carry it below for winter stores, as they were short in the fall of 1885. They wintered all right. The cause of their storing so much chestnut honey was because the winter of 1884 killed all the white clover, and the bees had nothing but chestnut honey to gather. This year I could not see a bee working on the chestnut-bloom, so I got no bitter honey—not even a smell. I am of the opinion that this is the matter with Mr. W. H. Dickinson's honey, page 947—all chestnut honey.

JOSIAH EASTBURN.

Fallsington, Bucks Co., Pa., Dec. 9, 1886.

HONEY, BITTER, FROM CHESTNUT-BLOSSOMS.

In answer to Mr. Dickinson's inquiry in last issue about bitter honey, I will say it is probably caused by chestnut-blossoms. Chestnuts are very uneven honey-producers, and sometimes, for years in succession, give no yield; but when they do, the yield is invariably bitter—at least here in New England. Mr. Dickinson has probably these trees in his neighborhood. Remedy, keep extracted close, and save the chestnut honey to feed, or to sell to A. I. Root for medicinal purposes at an advanced price.

J. C. GREENLEAF.

Greenleaf, Mass., Dec. 6, 1886.

WORKING BY LAMP AND LANTERN LIGHT.

When Ernest works bees by moonlight or lamp-light, I wonder if he uses the smoker as by daylight, and don't the bees fly in the chimney of the lamp, and crawl over him? I tried it once, but want to know how, better, before I do it again.

MARIA L. DEMING.

Watertown, Washington Co., O., Nov. 24, 1886.

A smoker is a help when working by lan-

tern light, but I managed to get along without it; that is, I made the lantern answer somewhat the same purpose. When the hive is opened, set the lantern right on top of the frames. If any bees fly up they will strike against the globe, but receive no injury, nor will they as a rule get on to your person, as the light is a strong counter-attraction. I do not like a lamp so well—bees are too apt to get down the chimney, and burn to death. Besides, the lamp is affected by any light wind.

ERNEST.

While at the Michigan State Convention I mentioned how Ernest worked by the light of a lantern, and a good many of the friends thought it astonishing. When I got home and questioned Ernest about it, he explained as above, that the Tempest lantern was placed right on top of the frames, and kept there. Its construction is such that a bee can not possibly harm himself by it. The bees handled were all Italians, and very gentle. When the lantern was taken away it was done so quietly that none of the bees followed it. When I worked by the light of a lamp, several years ago, I placed the lamp a rod or so distant, on one of the posts forming a grapevine trellis. I have had considerable experience in trying to work with bees after it was so late in the evening that neither the bees nor myself could see, and under such circumstances I have had them get on my clothing, and buzz all over me, so that it was quite a task to hunt up the little rascals. With the light of a lamp, however, or the Tempest lantern, the matter is very simple and easy when you once "get the hang of it."

HOW DOES MR. HEDDON DRIVE BEES INTO HIS HIVING-BOX WHEN TRANSFERRING?

I have tried transferring from our box hive, but can hardly tell how much of a success it will be; but I have fully decided to have all Simplicity hives for another year. Don't you think it sets bees to robbing or fighting, to put broken combs into hives? I wish you would tell me how Mr. Heddon contrives to drive the old queen and a majority of the bees into his hiving-box from the old box hive. I can't see how it can be done without taking the old hive all to pieces (I refer to his letter, page 269, A B C book). If you can tell me, I shall be greatly obliged.

MRS. W. E. NICELY.

Mitchell Creek, Tioga Co., Pa.

My friend, it certainly does set bees to robbing, and very often to fighting, to put broken combs into the hives, unless you put them in just at nightfall, and put in only so much as they will clean up entirely, and go into their combs over night. I presume friend Heddon drives the bees out by the drumming process. If you put an empty box over any bee-hive, close all the openings, then drum on the hives with sticks occasionally, for 15 or 20 minutes, the greater part of the bees will ascend into the upper box. We have not recommended drumming in the A B C book, because we have always found it much slower than the plan I gave. See our brief references to the matter on the opposite page of the A B C book from the one you quote.

DO BUMBLE-BEES SWARM?

Will you be kind enough to tell us how the colonies of bumble-bees increase? Do they swarm as the honey-bees do, or not? And hornets also.

RECIPE FOR HARD HONEY-CAKE.

It is first rate; improves as it gets older: 6 lbs. flour; 3 lbs. honey; $1\frac{1}{2}$ lbs. sugar; $1\frac{1}{2}$ lbs. butter; $\frac{1}{2}$ doz. eggs; $\frac{1}{2}$ oz. saleratus; ginger if you like it. Roll out in cards.

E. D. HOWELL.

New Hampton, N. Y.

I think Prof. Cook will be the best man to tell us about bumble-bees. If I mistake not, he has already given us something on the subject, but we want something plain and clear, and covering the whole ground. As the matter of different races of foreign bees, including the stingless, is now prominently before us, a brief history of *their* methods of propagation would also be interesting. Can we not have it soon, friend Cook?

WHY BEES BALL QUEENS.

C. C. Miller asks, on page 938, "Is it not possible that, in this case, the bees ball their queen for the sake of protecting her?" I have thought of this very point. Such might be the case, but I no longer think it *possible*. The act of bees "balling a queen" is not one of protection, but one of aggression on the part of the bees. That they do in some instances kill the queen, even if we do at once shut up the hive and leave them alone, is another fact that goes to show it is aggression. In most cases, as the doctor says, if the hive is at once closed when we find the bees balling their queen, and they are left alone for a few days, she is *usually* released, and we find her in no way apparently damaged, except the wings are ragged from being gnawed by the bees.

—ABBOTT L. SWINSON, 71—70.

Goldsboro, Wayne Co., N. C., Dec. 13, 1886.

CARP.

I want to ask you if you are sure the small fish in the carp-pond are carp. Here a species of sunfish get in all our ponds, and many persons are deceived by the little fellows, and some have sold them for carp before learning their mistake.

OLD BEES AS NURSES.

The question is asked, "Can old bees act as nurses?" Early last spring I moved 12 colonies about 75 yards, and enough bees returned to fairly cover two Simplicity frames. They were furnished brood for queen-raising, and raised one; but she was lost, probably on her wedding-flight. Afterward they raised another, but they then had young bees from a comb of hatching brood.

DANIEL E. ROBBINS.

Pason, Ill., Nov. 25, 1886.

Friend R., our small carp may be sunfish, but I hardly think they are. Our pond has no communication with any stream containing fish of any kind.—I have been satisfied for a good while that old bees could act as nurses.

HINTS TO GARDENERS.

To destroy the striped bugs on cucumbers and other vines, fill a bucket two-thirds full of the contents of the henhouse, then fill up with water; apply the water after it has soaked a while, to the vines.

If you want to plant cabbage-plants when the ground is dry, dig a hole about 3 or 4 inches deep,

with a hoe. Pour in a pint of water, press the roots down in the mud, and pack the loose dirt on top.

If you want to keep cabbage from bursting, pull up on them till the main roots crack. This might also work with lettuce.

Should you not be heavy enough to pull, put a 25-lb. rock in your right and left coat pocket.

Pleasant Valley, Ia.

C. H. EHLERS.

Friend E., I am very much in favor of such remedies as the one you mention for striped bugs; for if it does not hurt the bugs it will make the cucumbers boom until they outstrip the bugs. Your suggestion in regard to transplanting in dry time is a good one, but it takes a good deal of time.—We have tried the plan you recommend, for keeping cabbage-heads from bursting, but it always seemed to me like locking the stable after the horse was stolen. Our cabbages sometimes burst with a pop, even while holding them in the hands. Now, then, if anybody can tell when a cabbage-head is liable to pop, he is a smarter man in that respect than I am.

FUEL FOR SMOKERS; DO BEES REQUIRE WATER WHILE IN THE CELLAR?

My wife wishes me to ask you one more question; and that is, what kind of sawdust, or what material do you use in your smoker?

Do bees require water in winter when in the cellar? Can bees be moved a mile or two safely at this season of the year?

F. F. HILL.

Barton, Vt., Oct. 26, 1886.

The sawdust used in our Clark smoker is basswood, of a rather stringy nature. It must not be too fine. For further particulars in regard to fuel for smokers, see back issues in the department of Our Own Apiary, particularly page 835.

The question in regard to water for bees while wintering in a cellar has been fully discussed in our back volumes. Prof. Cook tried giving half of his bees water, and the other half no water; and while those that had water seemed to want it, and took it up readily when offered, the result was that they did not winter as well as those that had no water at all.

SUNSHINE FOR HORSES.

That barn—yes, that barn that so many judges have pronounced the most convenient barn and stable that ever was—oh, where can the free sunlight of heaven get into those stables? They should be so arranged that the sun could shine in to purify the air and warm the stock. You built your hen-house so as to give them plenty of sunlight, and your horses and cows none (if I understand the plan as shown in GLEANINGS). It would save feed, and your stock would be in better health if confined to the barn much in winter.

G. M. HORTON.

Smithboro, N. Y., Nov. 27, 1886.

Friend H., our horses are out almost every day in the year, winter as well as summer; and while it is true that there are no windows that give them the sun, the doors are quite often left open when the weather is mild, so that the afternoon sun comes right into their faces. The largest doors of the tool-house, where the manure-spreader is kept, are seldom closed unless the weather is cold or stormy. Then there is a pretty

good-sized door in front of the passageway in front of the mangers. When this is open the sun in the winter time shines right in their faces. I think I have heard it stated, that stables should not have too much direct sunlight. Will friend Terry tell us what he knows in regard to the matter?

IN MEMORIAM OF OUR OLD FRIEND A. F. MOON.

A good many of your readers will remember the late A. F. Moon, the veteran bee-keeper who departed this life in Rome, Ga., some three years ago.

Mr. Moon, for many years, was a bee-keeper at Rome, Ga., having some two hundred hives constantly under his supervision. He made a business of raising queens mostly, and his product was sold all over the United States and Australia. From this, as well as the cultivation of flowers, which was as pleasant to him as the honey-bee, he derived a meager support; but among all his trials he was always the genial gentleman, who always welcomed visitors, and liked to "talk bees." To say that Mr. Moon was one of nature's nobleman is not to say too much. He was a gentleman in every respect, and the veteran bee-keeper of the South. At our Southern fairs he was nearly always on hand to transfer, for the amusement and instruction of the attendants, and he had learned to transfer so well and so quickly that he could complete the job in 17 minutes from the word "go."

At one of our fairs he accidentally broke his leg; and the first amputation which was necessary, being incompletely done, or done in an unskillful manner, led in after years to a second amputation from which he never recovered. He died, regretted by the entire inhabitants of Rome, among whom he had made his home for a long number of years.

Genial and warm-hearted in life, he died like "one who wraps the drapery of his couch about him and lies down to pleasant dreams." In the great hereafter, where he has gone before, may we meet again some summer day. T. E. HANBURY.

Atlanta, Ga., Dec. 9, 1886.

SELLING HONEY IN NEVADA.

I have been pretty busy putting up honey in those little glass pails, and packing my sections for market. I put 20 lbs. in a box, which I have made on purpose for them, compact and close, and each wrapped in blue paper, so when they get to their destination they are in good condition. I feel satisfied, when I hear the remarks of the parties to whom they were shipped; as, for instance, "Did you ever in your life see honey packed as nicely as this?" I tell you, I feel proud of it (but not envious) to know that all parties are satisfied. Well, now, in regard to those pails, there were two dozen broken (out of 400), but otherwise all right. If they could only make the mouth of them a little smoother it would be a great advantage to all parties. My honey is going off at good prices. For the finest of it I get 25 cts. per section in San Francisco, as well as in the adjacent counties. There is plenty of honey here that can be bought for 12 cts., but it is not so attractive, and, of course, does not sell as well as mine. I have found out that honey, as well as any thing else that is put up in proper shape, provided the quality is good, will sell, and it will pay, too, if you only take a little pains with it. That is my experience; and I know that, if we all take a little care, we can all do well.

Reno, Nevada, Nov. 26, 1886.

E. A. MOORE.

BOX-HIVE MEN IN KENTUCKY.

Of the 6074 subscribers you report in Dec. 1, No., it occurs to me that but few if any are taken on the line of my recent trip across this State and into three small towns in Kentucky. The country abounds in natural resources and box gums, but few frame hives. I saw some at only one place, and they appeared to have been neglected. Many would get movable frames if, as they say, they knew enough about bees and the management of the hives. When they found out I had no interest in patent hives and clap-traps, none to sell, but, like them, kept bees for the pleasure and profit they gave, I had eager listeners for what I had to say, and many were the questions asked, and genuine and pressing the invitations to stay all night or spend the day. They get marvelous quantities of honey in an old-fashioned, awkward sort of way. That Mississippi bottom is a great place for bees, fish, and game, and—big graveyards.

W. P. HENDERSON.

Murfreesboro, Tenn., Dec. 4, 1886.

NOTES AND QUERIES.

GREAT DROUGHT.

I SOLD my bees down to 67 colonies to commence the season with—about 50 good colonies, the rest below par. The fore part of the season was very good; the honey gathered was extra, on account of being heavy, caused by hot dry weather; but the season closed with the most severe drought experienced in this section since 1871, the fall of the great Chicago fire. I made 4000 lbs. of white-clover honey in 1-lb. sections, and about 2000 lbs. of extracted. I increased to 130 colonies, which are all in the cellar in splendid condition. I had to feed only a few pounds.

North Prairie, Wis.

W. ADDENBROOK.

How shall we make labels stick on tin?

Wheatland, Mich.

JOEL C. MERRIMAN.

[Several recipes have been given in our back volumes. Briefly, put some honey with your paste, or sandpaper the tin a little, or rub the tin with saleratus water. Lastly, use the Royal glue found on our 10-cent counter.]

OLD ROPE FOR SMOKER FUEL.

Among all the smoker fuels mentioned in GLEANINGS, I had not seen old ropes spoken of. I tie them in knots, then cut the knots apart, and they make a good and durable fuel when used with rotten wood, etc.

BURDETTE HASSETT.

Howard Center, Iowa, Dec. 10, 1886.

HOW TO KEEP POSTAGE-STAMPS FROM STICKING TO LETTERS.

If you will tell customers, when sending stamps, to rub them on their hair in its natural state it will prevent sticking together, and not injure the stamps in the least.

T. D. WALLER.

Port Andrew, Wis., Dec. 5, 1886.

[Thanks, friend W., for giving us one solution, at least, to the postage-stamp trouble. The only objection I can think of is, that if you use hair-oil you might get the stamp so greasy it would not stick when it was necessary. The other is, that "t'other fellow" might lick his tongue on his stamp after it had been rubbed on your greasy hair. But even this would be better than having them stuck fast to letters, so far as we are concerned—begging pardon if we seem selfish.]

REPORTS ENCOURAGING.

A QUEEN AND $\frac{1}{2}$ LB. OF BEES.

THE season has closed, and has been a good one all together. But little fall honey, except buckwheat. We started with 4 colonies, and increased by natural swarms to 7, besides losing two fine swarms. I bought a queen and $\frac{1}{2}$ lb. of bees of A. I. Root, received May 28. From these we have a fine colony that gave us some surplus. We have 400 lbs. of honey for our work. It is selling at only 10 cts. We hope to make even a better record next year.

Philo, Ill., Nov. 27, 1886.

M. L. BREWER.

SUM TOTAL.

My crop of surplus for 1884 was 13,500 lbs.; for 1885 was 17,500; for 1886 was 13,450.

A. B. CHENEY.

Sparta, Kent Co., Mich., Nov. 8, 1886.

SEVEN COLONIES.

This year I have got 800 lbs. of honey in one-pound boxes from seven colonies of bees.

Orangeville, O., Dec. 1, 1886.

P. MOYER.

300 LBS. PER COLONY WITH BLACK BEES.

We began this season with 7 good colonies and 3 poor ones; increased to 19, one of which absconded. We extracted about 2225 lbs. of honey, but fed back about 75 lbs.; 16 of our colonies are Germans, the other 2 are hybrids. Supposing our 3 weak colonies to have given 125 lbs. of honey (which estimate may be rather low), the other yielded 300 lbs. to the hive. If you have heard of any man in Ontario who has beaten us with Italian bees, you can let us hear of it through GLEANINGS.

J. FENNELL.

Shelburne, Ont., Can., Nov. 26, 1886.

SWINSON'S REPORT FOR 1886.

I began the season with 66 colonies, separated in four different apiaries. I ran all for queens and increase. I bred American-Albino-Italians, Syrians, and Carniolans. I sold 32 nucleus colonies, 228 queens. Received from sales of bees and queens for the season, \$275. I increased to 71 colonies, inclusive of sales. Nine-tenths of the orders were for Italian queens. During May, and up to June 20th, orders were plentiful; after that date I sold but few queens and no bees; 95 per cent of orders were for untested queens. Honey-flow was poor. All in fine order for winter.

ABBOTT L. SWINSON, 71—70.

Goldsboro, N. C., Nov. 25, 1886.

"NEVER OBLIGED TO REPORT A FAILURE:" 187 LBS. EXTRACTED HONEY, AVERAGE, PER COLONY.

I commenced the season with 175 colonies in four apiaries, from three to six miles apart. Of these, 95 colonies were run for comb honey in 1-lb. sections; the average yield was 105 lbs., and increase of bees to 145 colonies. The remaining 80 colonies were run for extracting. The average per colony from these was 187 lbs. In all, 175 colonies increased to 230; surplus honey, 25,000 lbs. Bees are all in good condition for winter; most of them have more honey than is necessary.

I have been engaged in bee-keeping for the past eleven years in different localities in this State; and although some seasons have been excessively wet and cold, and others right the reverse, yet I have never been obliged to report a failure.

Mauston, Wis., Nov. 17, 1886.

F. MCNAY.

BLACK BEES AHEAD.

I packed my bees on summer stands last winter, and left the packing around them until near swarming time, to prevent spring dwindling. The bees began to swarm in May, and got nearly through by the time my neighbor's bees commenced, which had been in the cellar. A part of my bees are Italians, which I got of friend Root; a part hybrids, the rest blacks. The blacks and hybrids led off in swarming, the blacks a little ahead, but not much; but when the Italians got at it they did not know when to stop.

Now for the honey: The Italians were a long way behind the others in the amount of honey gathered, but they are much nicer to handle. I have taken our frames of Italians several times with the queen on it, and she kept right along laying as though nothing had happened. I used Root's 1-lb. one-piece sections, and I don't want any other kind. When filled with basswood honey they are hard to beat. I secured about 2200 lbs. of comb honey.

J. B. WHITON, 46—50.

Ithaca, Gratiot Co., Mich., Sept. 28, 1886.

MYSELF AND MY NEIGHBORS.

Their feet are swift to shed blood. There is no fear of God before their eyes.—ROM. 3:15, 18.

ON the night of Dec. 22 (just after the shortest day of the year had gone) I was awakened about half-past four in the morning by the sound of fire-bells.

Now, ever since the burning of our warehouse last March, the sound of bells in the night starts me instantly until I regain consciousness enough to recognize that it is not a fire-alarm. This time, however, it was the fire-alarm for sure, but there was not any fire. The cause of it was something as follows:

About one o'clock, as the night-watchman was passing along his beat on one of our principal streets, two individuals approached him. He supposed they were boys out late at night, and accosted them pleasantly. When close to him one of them quickly swung a revolver up before his eyes while the other held a club over his head, and threatened to kill him if he moved or made a sound. He was then bound and gagged, his overcoat was tied over his head, and he was led to the court-house, where about \$40,000 was deposited in the safe of the county treasury—the taxes that had been collected preparatory to being forwarded to Columbus. There were five men all together. Three worked at the safe while the two others kept watch. They were prepared with safe-breaking tools, and plenty of dynamite; but our safe was too well made for them to get through in three hours' time. One of the sentinels announced, somewhere about four, that people were stirring, and so they were compelled to give up the job. Our marshal released himself in fifteen or twenty minutes, and gave the alarm, as before mentioned. The thieves escaped with horses and buggies taken from our citizens. The horses and buggies have been secured, but the robbers are at large.

I have often told you of talking to criminals, and men guilty of crimes of various

kinds, as I met them in our county jail. In all the cases that I remember, or nearly all, there were some extenuating circumstances. A good many of the crimes were committed while under the influence of strong drink, and sometimes I felt satisfied that the crime in question was committed when the party did not know what he was doing. Generally the criminals have repented of the act about the time I talked with them, or, at least, claimed to be penitent. I have never yet talked with a man who was on the eve of committing a crime. I have sometimes wished I could do so, in order to study more perfectly the phases of the human heart, especially of a human heart wholly given over to Satan. I have met many men who rejected the Bible; I have met some who rejected the golden rule, claiming that it is every man's business to look out for No. 1. I have talked with tramps who very honestly owned up that they did not propose to work for a living; and I have found a few who seemed so callous and hardened, that, when I asked them if they were content to have poor, weak, hard-working women cook and prepare their food while they did nothing, would, when pressed hard, say they did not care. Such individuals, however, seem hardly human, and I have sometimes been tempted to think they were about half way between the brute creation and humanity, and right in the midst of civilization too. It seems to me that Darwin might have accepted these phases as his "connecting link." These five men of whom I have been speaking, however, without question deliberately and with premeditation not only rejected God and the Bible, but they rejected Christ and his teachings; they rejected the golden rule, and they declared by their actions that they did not care whose money it was, nor what it cost to get it. They were willing to sacrifice every thing—the chances of being shot themselves, and the probability of committing murder themselves, for a few paltry dollars. These dollars were the hard, scraped-up earnings of the farmers of Medina County. These five men were probably aware of the fact that farmers have had a terribly hard row to hoe in raising wheat at 75 or 80 cents a bushel, corn for 20 or 25, and other things in proportion. They recognized how hard it has been for many of the farmers to scrape up enough money to pay their taxes; and yet they would, without scruple, appropriate the hoarded earnings of our county. In the language of our text, "There is no fear of God before their eyes." They had sold themselves to the evil one; and when I want to be reminded that Satan is actually at present finding a lodging-place in the hearts of men in this nineteenth century, I have only to think of the state of these men's hearts. Some of us are beginning to think that stories of highwaymen are getting to be a thing of the past. Alas, my friends, they are *not* a thing of the past. In spite of our schools and churches, and the progress we as a nation are making in civilization and Christianity, our papers contain accounts like these continually. Woe betide us if we sit down and fold our hands, thinking the victory is won. If we banish

saloons from our land, it may have the effect of somewhat lessening this sort of work; but I am afraid that not all of these men can plead the poor excuse of being hard drinkers. I have been told there are men of this class to be found who are never intoxicated at all. Suppose it were possible to sit down and have a talk with such as they while the purpose was in their hearts of committing these crimes, what sort of defense would they make? Every rational human being is, as a rule, prepared to defend his course. A great many commit crimes through revenge; and I have heard men admit that they would risk death itself for the sake of indulging their passion to pay back somebody who had wronged them. Men sometimes commit murder because of dwelling on fancied or real injuries, and let Satan into their heart in this way. These robbers, however, of whom I speak, had no revenge in their hearts; they had no ill will toward the marshal, whom they threatened to kill. When they started away, one of them took the overcoat from off the marshal's head and folded it up for a pillow for him to lie on, indicating that there was a *spark* of humanity of one kind in their hearts yet. They had no disposition to do him harm, only so far as it was necessary to get the money. In view of this, what, then, is the remedy? Simply Christ Jesus. This class of men are as far away from the Bible and Bible teachings as it is possible for any thing to be. The Bible is at one side, and they are far away off on the other side. A great gulf lies between them and Christ's spirit and his teachings. They were prepared to commit deliberate murder—yes, even to murder those who had never wronged them nor injured them. We call a man heroic when he gives his life for his *friends*. Christ gave his life to save his *enemies*. Does it not seem almost hopeless to try to put the difference on paper, between Christ's spirit, or even that of a Christian man in whom Christ's spirit has found a lodging-place, and these men in whose hearts Satan has found a lodging-place? I wonder if they know any thing of the teachings of the Bible; I wonder if they have ever at any time in their lives thought of becoming Christians. My mind follows them, dear readers, because they are my neighbors. It is true, they do not live in Medina—at least, I hope they do not; but the spirit that actuates them is finding a lodging-place, to a greater or lesser extent, in the hearts of humanity all round about us. These events have this effect upon myself: They make me love the Bible more than I ever loved it before, and they make me love good, honest, God-fearing men more than I ever loved them before; and I turn with renewed joy and thankfulness to that promise in the sermon on the mount—"Blessed are the meek, for they shall inherit the earth." Through Christ this evil spirit is to be conquered and driven out; and upon Christian people rests the burden and responsibility. It rests with such as we are, sinful and imperfect, to hasten the time when God's kingdom shall come and Christ's will be done in earth as it is in heaven.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

SUITABLE DRESS FOR WORKING AMONG THE BEES.

Conveniences for the Apiary—Continued.

TO work among the bees to the best advantage during hot weather, I deem it highly essential that the apiarist pay due attention to the matter of dress. He should be so attired that he can work with comfort as well as convenience, burning hot though the sun may be. His clothing should be rather cheap, and not easily injured by honey dripping.

Constitutions are so widely different that what will be applicable to one will not be to another. Some will be easily affected by the sun's heat, others from profuse sweating. In the face of these circumstances I am not sure that I can recommend a dress suitable for all. But I fancy that many of my readers are constituted like myself.

I once thought I was not adapted to summer work out in the apiary. The sun's heat completely "played me out," as I was wont to express it. But I wore no underwear. In fact, I was attired in about the same dress that Dr. Miller says he wears;* namely, "One straw hat and veil, one cotton shirt, one pair of cotton overalls, one pair of cotton socks, and one pair of shoes." He further states, that about noon he sponges himself off and puts on dry clothing in place of that which is wet with sweat. The latter is put out to dry, to be used the next day.

Unlike Dr. Miller, I never could sweat enough to keep sufficiently moist to counteract the burning rays of the sun. The single thickness of cotton cloth of one shirt was not enough to prevent my back from blistering. The heat on such occasions, when I was attired thus, seemed unbearable, and I had a burning desire to get to some cool shady nook. Not only this, but the sun's rays made me feel dizzy at times, and a sort of sickness, which I thought savored of sunstroke, came over me.

The next summer, in addition to the cotton shirt, I wore an undershirt—the latter not heavy, part cotton and part woolen. I was aware of the fact that many wear their underwear the year round, claiming that it protects them, not only from cold, but from extremes of heat. I likewise noticed, in works on health and hygiene, that underwear is recommended. Influenced by this, I decided that, at the approach of warm weather, I would not cast aside my underwear as usual. The following summer in the apiary attested the wisdom of this decision, and I nevermore experienced any inconvenience when working in the hottest sun. The woolen not only proved a great protection, but stopped the speedy evaporation of perspiration—what little I do have. The moist woolen, for me, has a delightful coolness which is indeed refreshing. I have gone directly from the hot sun in the apiary to the office. The latter place seemed oppressively hot, while in the open air I felt very com-

fortable. Mind you, it was right the reverse when I formerly worked among the bees with but one thickness of cotton cloth over my back.

My experience may be a little singular; but, fellow-apiarists, if you are troubled much by the heat of the sun, try light underwear the coming summer. I feel sure that some of you will find it a decided advantage, while others may be so constituted as to prefer the dress recommended by Dr. Miller. I don't know, but it seems to me a light underwear for our friend the doctor might prevent such profuse sweating; but it may be that experience has taught him to the contrary.

A SUITABLE HAT FOR THE APIARY.

Reasoning from the foregoing, my readers might naturally suppose that I would recommend a heavy hat. Not so. I prefer a light hat—the lighter in weight the better. That you may get a better idea of the one I prefer, I will ask the reader to turn back to the cut on page 1001, last issue. The accompanying engraving shows the same hat, but not so closely. The covering is cloth, and of a light drab color. The brim is held out in position by a light steel hoop. The crown on the inside is so made that it will fit any head. This is accomplished by means of a light rubber band sewn into the cloth crown. The lower side of the brim is covered with green cloth. When it is on the head, one is scarcely aware that he has any head-covering, so very light and easy is it. The broad brim, with the green on the under side, has a softening effect on the eyes, and completely shades them from the glare of the summer sun. When the latter is very hot I pull a couple of large plantain-leaves, or, better still, a large grapevine-leaf, and place it in the top of the hat.

"Why isn't a broad-brim palm-leaf or straw hat as good?" you ask. In the first place, they are much heavier, and warp into shapes that are outlandish, to say the least, after a little use. The average farmer will go about with a thing on his head that looks more savage than civilized. Again, in a hot burning sun I can not bear to have a hat pinch tightly around my head—it gives me the headache. The cloth one I have just described is entirely free from this latter objection, and, on the contrary, is so constructed as to give a comparatively free circulation of air about the forehead. I have used this style of hat four or five summers, and therefore take pleasure in recommending it. In a future number I will tell how well this hat is adapted for holding a veil.

Before leaving this subject of hats, I wish to say that I think, upon inquiry, they can be purchased in their season at most of the clothing-stores. They retail at 25 cts. each. In the meantime we will see what we can do in the way of furnishing them for next season's use, should there be a call for them.

STRAW CUFFS TO PROTECT THE WRISTS FROM STINGS, AND TO PREVENT SOILING THE SHIRT-SLEEVES.

My readers will please take a look at the cut on p. 1001, last issue, as well as the one opposite, for a view of the cuffs. You ob-

* A Year Among the Bees, p. 64.

serve that they are made of straw, closely knit, and large enough to cover the sleeve half way to the elbow.

When working among the bees I always like to have my shirt-sleeves draw up a little from the wrist. They are held up by coiled wire garters. This draws the sleeve tightly about the wrist, and prevents, to a great extent, bees crawling up. But whether the sleeves are drawn up or not, the bees are liable to sting the exposed parts of the wrist, which, when stung, with me, the pain is exceedingly sharp. To protect myself during past seasons I wore the straw cuffs. You notice they drop down close to the hands, so that, when a bee crawls up the latter, being unable to walk under, he crawls up the cuff.

In autumn weather, during fall feeding, for instance, when it is comfortable to wear

ducking, the ordinary material. Those made of linen are in general a better fit. The ordinary overalls are so ill fitting and baggy that I am afraid I should be ashamed to be introduced to visitors when attired thus, especially if father should come out (as he is liable to do) and say, "Mr. Jones, this is my son. He will take great pleasure in showing you about."

In warm weather I prefer low shoes and light cotton socks. If the grass is wet with dew in the morning, as is often the case, I slip on rubbers. Lately, however, I have found something that I like a little better than rubbers; i. e., light rubber boots designed for ladies. I think I shall prefer the latter, for the reason that they keep the bottom of my pants dry, which rubbers sometimes fail to do.



THE APIARIST AT WORK OVER A HIVE; ALSO SHOWING HIS MANNER OF DRESS.

a coat, the sleeves of the latter may be tucked into the cuffs, and thus prevent the bees crawling up the mouth of the sleeve, which always seems especially inviting to a bee, especially if hybrid or black. As stated in the heading, the cuffs are useful in another respect; namely, keeping the coat or shirt sleeves clean from honey or wax. Our boys have, therefore, found them invaluable when transferring, or in any other job where one is liable to get his fingers sticky.

OVERALLS.

If I intend to work for any length of time among the bees, I invariably don a pair of overalls as you see. The kind I use are made of a fine quality of blue linen — not

Having now for the present disposed of this matter of dress, perhaps you inquire what the fellow in the picture is doing. I intended, among other things, to illustrate how I use the Simplicity-hive cover for a stool. I sit down to a hive thus, when I become tired of stooping when on my feet, and, as you see, the cover answers admirably. Indeed, I think it is a far better substitute than a tool-box, which has to be lugged about. The stool is always ready as you see.

I had intended to mention one or two other items in this connection, but as the "boss printer" says my room is limited, I will defer them until next issue.

REPORT OF THE COMMITTEE ON THE CHAPMAN HONEY-PLANT.

WRITTEN OUT BY PROF. McLAIN.

AS considerable space has already been given to reports in regard to this plant, we thought it hardly worth while to go over the ground again; but as friend Chapman particularly wishes a full report from all the members comprising said committee, we subjoin the following:

The committee appointed by the North-American Bee-Keepers' Society, at the annual meeting held in Detroit, Mich., December, 1885, to investigate the merits of a honey-bearing plant now being cultivated by Mr. Hiram Chapman, of Versailles, N. Y., met at that place July 25, 1886. One member of the committee, Mr. Manum, of Bristol, Vt., was not able to be present; but as each member of your committee was furnished with a sufficient number of plants to afford opportunity for observing their growth and habits, and also to gain some information concerning the value of the plant as a honey-producer, a letter from Mr. Manum, in which he gives the result of his experience and observation, is herewith appended. This plant, which Dr. Beal, of the Michigan State Agricultural College, and Mr. Scribner, Asst. Botanist of the U. S. Department of Agriculture, tell us is *Echinops Sphaerocephalus*, is an imported perennial, native in Central France, and, like all of the family to which it belongs, very rich in honey.

This plant will probably be popularly known in this country as the "Chapman honey-plant," so named on account of Mr. Chapman being first to cultivate it, and being first to bring it to the notice of bee-keepers. We found three acres of the plant in bloom. The height of the mature plant is from 3 to 4½ feet, and each root bears from 5 to 15 round balls, or heads, from one inch to 1½ inches in diameter. These heads stand upright, and the entire surface is covered with small white flowers having bluish stamens.

The stalks and leaves so nearly resemble those of the common thistle, that, were it not for the head, the difference would not be easily noticed. There is, however, in this particular, a very marked difference, the appearance of the head being aptly described by its botanical name, which signifies round-headed, and in appearance like a hedgehog. The flowerets on top of the head open first, then they open later along the sides of the ball, continuing in the order of nature around the entire surface of the sphere. Near to the stem the last flowerets open after the blossoms on the tops of the heads have disappeared, and the seed-capsules of the first blossoms have hardened.

Unlike the thistle, the seeds are provided with no balloon by which they may be borne by the wind. The seed is, in weight and appearance, very much like a small grain of rye; is inclosed in a capsule, and falls directly to the ground, if not seasonably gathered, not spreading more than oats, if left to fall without harvesting.

From the time of the appearance of the bloom upon the tops of individual heads until the fading of the last blossoms upon the lower part of the head near to the stalk, is about eight days; the continuance of the blooming depending upon the nature of the soil and the season; but the heads, or buds sent out from each individual shoot, and forming each individual cluster, vary in degree and size, so that the natural term of blooming and honey-bearing may safely be reckoned at from 20 to 30 days. The term of blooming may also be prolonged to a considerable extent by cutting back a portion of the plants, and the facility with which the honey-harvest may thus be prolonged constitutes an important feature when estimating the value of this plant. The plant is hardy, easily propagated, perennial, and appears to flourish in all kinds of soil, and there is no danger of its becoming a pest or a noxious weed. It does not bloom until the second season; and as it does not spread in seeding, its extirpation would be easily accomplished. Its seed may be scattered in waste places, or it may be sown in drills or hills, like onion seed. It seems to be characteristic of the plant to root out all other vegetation, and take possession of the soil. No weeds, and but very little grass, was seen growing in the three-

acre plot observed. A ten-acre field, sown broadcast and harrowed in like rye, has also made a vigorous growth, and seems to be taking possession of the soil, in opposition to quack-grass and weeds. As to the value of the plant to the honey-producer, there appears to be no room for doubt, whether quantity or quality, or both, be considered.

Within reach of Mr. Chapman's apiary, no other resources were accessible for honey-gathering. The severe and prolonged drought destroyed all other honey-yielding blossoms, and yet in some instances the bees were making an excellent showing in the hives. No definite conclusion could be reached as to the probable returns in pounds of honey from a given area. That the returns would be satisfactory, was evidenced by the fact that the entire area was "alive with bees," and they visited the flowers from daylight until dark, and sometimes eight or ten bees were upon a single head at one time. Mr. Hubbard, who cultivated some of these plants obtained from Mr. Chapman, represented that he had counted the number of visits made by bees to a single head from 5 A.M. to 7 P.M. He reported the number as being 2135, actual count. In order that the committee might have some idea of the quantity of nectar secreted in the flowers of a single head, the day before our arrival Mr. Chapman had wrapped a thin paper about a head, the half of which was in full bloom, and tied the paper around the stem with tape, thus preventing the bees from appropriating the nectar for 24 hours. Upon removing the paper on the forenoon of the day of our visit, the flowerets were found to be dripping with nectar, and the drops sparkled in the morning sun. Each of us have made similar tests with like results since that time. We cheerfully and confidently recommend this plant to the bee-keepers of North America as a most valuable acquisition to the list of bee-forestage plants.

We believe that a trial of the plant will, better than any further words of approval from us, publish its own commendation.

Respectfully submitted,

N. W. McLAIN.

A. I. ROOT.

L. C. ROOT.

The following is a report in regard to the plant, from Mr. Manum, who was absent at the time the other members of the committee assembled at Mr. Chapman's:

L. C. Root, Chairman of Committee on the Chapman Honey-Plant.—Dear Sir:—As I failed to put in an appearance when the committee met at Mr. Chapman's, in July last, it is not only due you, but to Mr. Chapman and the convention as well, that I make a short report of my experience with the Chapman honey-plant, 50 roots of which Mr. Chapman so kindly sent me last spring. The plants thrived well through the summer, under moderate cultivation, and planted on light sandy soil. I did not take extra pains with them, as I wished to test their hardiness. The plants commenced to bloom July 14, and continued to bloom until Aug. 21, making 39 days that they continued in bloom; and from the first day of their blooming until the last, the little flower-balls were covered with bees every day from early morning until dark, rain or shine (we had no very heavy rains during this period), the bees constantly going and coming. I have counted 16 bees on one ball at one time, all sucking the sweet nectar from the richly laden flowers of the Chapman honey-plant. At Mr. Chapman's request I covered 3 of the balls with tissue paper, and 2 with muslin. On the following day there were several bee-keepers here. I removed the paper from the balls, and, lo and behold! the flowers were filled—yes, covered, as it were, with honey. We found, by holding the hand under one of the balls, and jarring it, the honey dropped in the hand enough to make several drops. In a moment a bee alighted on one of the uncovered balls, and never moved until its sack was filled, when it flew away. On timing them I found that five bees filled themselves and flew away in two minutes and twenty seconds from the time the first bee alighted on the plant. The two balls that were covered with muslin were now uncovered; but the honey seemed to have evaporated, as there was but little visible, although I had noticed bees alight on the muslin, and try to suck honey through the cloth. This fact was conclusive to me that the bees could smell the honey through the cloth. I find that, by cutting

back the plants in June, they will bloom later in the season. This would be of advantage, perhaps, to those who are favored with an abundance of buckwheat for their bees to work on during August, as, by cutting it back, it would then commence to bloom the last of August, thereby affording good pasturage for bees in September.

In conclusion, I must say that I am well pleased with the plant, judging from this first year's trial; and I venture to say, that the time is not far distant when it will be extensively cultivated for its honey-producing qualities. I expect to plant an acre next spring. Were it possible for me to meet with you at the convention, I would move a vote of thanks to Mr. Chapman for having introduced this valuable plant. It is valuable, not only to beekeepers, but to the florist as well, because it is a very beautiful plant, and so very rare withal.

I remain yours truly, A. E. MANUM.
Bristol, Vt., Oct. 7, 1886.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 1, 1887.

And God said, Behold I have given you every herb bearing seed, which is upon the face of the earth.—GEN. 1:29.

THE AMERICAN APICULTURIST FOR JANUARY.

We congratulate friend Alley on having given us another number containing so many good things. I am especially pleased with his remarks in regard to procuring good queen-cells, on page 24.

THE BEE-HIVE.

The above is the title of a very pretty and well-gotten-up little bee-journal, for the small sum of 30 cts. per year; and commencing with the April number it will be hereafter published once a month instead of only once every other month. The printing and general get-up of the whole does much credit to friend Cook. We can furnish it with GLEANINGS for only \$1.20 a year.

DIFFERENCE IN CHARGES BETWEEN EXPRESS AND FREIGHT.

A GREAT many times, heavy and bulky goods are ordered by express. When we feel quite certain the party who made the order was thoughtless or not posted, we take the liberty of sending by freight. The following illustrates it:

The goods you shipped me on the 26th of November were received to-day, all in good shape. I am pleased with them; freight was 86 cents, or \$2.00 less than by express. They are heavier than I thought they would be. G. L. HONEYWELL.
Carr's Creek, N. Y., Dec. 8, 1886.

You will notice, the goods were 12 days on the way. Perhaps they might have gone in less than half that time by express, but our friend saved \$2.00 by waiting a few days longer.

ATTENDING STATE AND COUNTY FAIRS.

SEVERAL of the brethren have taken me to task because I, a professing Christian, recommend other professing Christians to mix in with those usually found at such places. If it were a horse-race or a beer-garden, or even a skating-rink, I should be very slow in advising our boys and girls to go.

Our fairs, however, are instituted for educational purposes, and teaching rural and mechanical industries—a sort of education I begin to feel is of just about as much importance as that to be received at schools; therefore I recommend that all Christians should be on hand every time if possible, and by their weight and influence hold on and encourage the good, and crowd out the evil. A part of our Savior's prayer for his disciples was, "I pray not that thou shouldst take them out of the world, but that thou shouldst keep them from the evil."

DR. C. C. MILLER'S BOOK, "A YEAR AMONG THE BEES."

I SHALL have to confess I never got time to read this little book thoroughly until while on the cars on my way to the Michigan Convention. I put it in my overcoat pocket, and I found it in more ways than one a blessing. It is *extremely* tiresome for me to be obliged to sit in a car-seat while riding evenings, hour after hour. In the day time I can look out among the homes scattered along the line of travel. Well, I read friend M.'s little book clear through, and I am so very much pleased with it that I wish, during the coming year, to make a review of it through the pages of GLEANINGS, illustrating every point I think worth illustrating, by appropriate cuts. When friend M. reads this editorial he must understand that, if he has any objections to make against my so doing, he must speak quick, or he may get into print more than he expects, and before he knows it.

IS THE NECTAR OF THE FLOWERS MATERIALLY CHANGED BY BEING GATHERED BY THE BEES?

My attention has been called to the fact that on page 881, Nov. 15 issue, where I say sugar syrup fed to the bees will be sugar syrup still, I am in apparent contradiction with what Prof. Cook says in his Manual in regard to the same matter. My reply is this: Prof. Cook does say there is a slight difference in sugar syrup, or nectar of the flowers, after having passed through the honey-gathering apparatus of the bee. I insist, however, that this difference is so slight that my remarks are in general true. I have fed bees sugar syrup, and made them fill sections. The product was beautiful to look upon, but everybody pronounced it sugar as soon as they tasted it. I have also by accident fed syrup a little burnt. Now, even though it remained in the hives six months, the burnt taste was just the same as when the syrup was made. Furthermore, I have melted candied honey, and fed it to the bees to finish out unfilled sections. Now, this melted candy honey, even though perfectly sealed up in the combs, candied again almost at once, so that you could tell at a glance the honey gathered directly from the fields from that which had been fed to the bees to finish out the sections. I could mention many more experiments that indicate that the article fed to the bees passes in and out of their honey-gathering apparatus without any change, practically speaking; therefore neither Mrs. Cotton nor anybody else can feed bees sugar so as to induce them to make honey; and those who have tried feeding bees glucose, have found simply glucose stored in the combs, and nothing else, so far as taste is concerned. In some cases there may be a slight acid taste perceptible after nectar has been gathered by the bees from the flowers, but not enough to be worthy of much comment, in my opinion.

THE number of subscribers up to date numbers 6079.

MYSELF AND MY NEIGHBORS.

AS you will notice, this department is to be hereafter in the first issue of the month, in order to divide up my friendly talks to you a little more.

MATTER FOR GLEANINGS.

As usual at this season of the year, a great amount has accumulated. We hope the friends will be patient, therefore, if their communications should not be presented for three or four issues after they have been sent in.

THE CONVENTION AT ALBANY.

I EXPECT to be on hand some time during Tuesday, the 11th, and to be present during the three days' session. As this will take me so near the city of New York, I shall probably make a call there, and try to write up such items of interest as I may find for the readers of GLEANINGS. As the locality is a central one for many of our veterans in bee culture, we hope to see a large attendance.

DATING BEE-KEEPERS' CONVENTIONS.

It seems a little unfortunate that the Ohio Convention should be exactly on the three same days as the convention in York State, which so many of us have been proposing to attend. Can't our friends who have these matters in charge have an understanding, so we may avoid having them come on the same day? Surely our winters are long enough. My engagement to attend at Albany will, of course, prevent my being at Columbus, but Ernest will be there even if it is bad for us to be both away at once.

KIND WORDS.

It seems as if the kind words from the readers of GLEANINGS this year exceeded any thing we ever received during any former year. Over and over again have I thought this or that good friend must certainly have such an answer as he deserves, forthwith; but when so many of them came it began to be out of the question; and when I talked with the subscription clerks about it, they said it was all they could possibly do, even by working over hours, to get the names on the list, let alone replying to letters. And now I want to say to you all, may God bless you all and reward you! These words of friendship and encouragement are not forgotten; and if I can not get time to reply to each one of you personally, I can remember you in my prayers. May he send a happy New Year to you all.

SHIPPING QUEENS FROM THE SOUTH DURING WINTER MONTHS.

In response to an advertisement of Miss Nellie Adams, seen in another column, we sent for a queen, partly to test her ability in mailing queens during cold weather, and partly because we desired a queen for a queenless colony in an observatory hive. We are glad to announce to our friends that the queen shipped from Florida arrived in Medina in good condition, and only one bee dead. This, too, was when we had quite a cold snap of weather—so cold, indeed, that on opening the cage the queen and her attendants were stiffened with cold. They soon revived, however, on exposure to warmth. It is an interesting question how long a few bees may remain stiffened during shipment, and yet be revived on arrival at their destination. We are glad to make this announcement in favor of our friend Miss Adams, even if it does savor a little of free advertising.

SPECIAL NOTICES.

WE will pay 20 cts. each for May GLEANINGS, 1875. Remember, 1875, and not 1876.

DISCOUNTS FOR JANUARY.

REMEMBER our discount for this month will be 4%; and we have decided to let this apply to all goods of whatever nature. Please remember to have your orders in before the month is gone, if you wish to avail yourselves of this offer.

CHANGE IN PRICE.

SINCE E. L. Gould's advertisement was printed on page 2, we have received from him the following card, taking the place of the advertisement.

The price for Chapman honey-plant seed is as follows: $\frac{1}{2}$ oz., 40c; 1 oz., 80c; 2 oz., \$1.50; 4 oz., \$2.00; 8 oz., \$3.00. E. L. GOULD. Brantford, Can.

BOSTON MARKET LETTUCE-PLANTS.

WE have a beautiful stand of nice little plants now in our greenhouse; and in order to test the matter of sending them safely by mail, we will send 10 plants for 5 cts.; 100 plants for 40 cts.; and if they don't reach you in good order there will be no charge. These plants are from seeds from selected heads of our own raising.

HOW TO ORDER SEEDS WITHOUT WRITING A LETTER.

WE can furnish, on application, a sheet of paper containing the matter on pages 4 and 5. Take this sheet, and with a pencil mark around the seeds you want. Inclose the cash to correspond, and we will know just what to do, and you need not write a word unless you choose, except your name and address. Our complete catalogue of seeds and implements will be out in a few weeks.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3tftd

"BEE-KEEPERS' ADVANCE"

Is a monthly journal of 16 pages, 25 cts. per year. Clubbed with GLEANINGS for \$1.15. Sample copy sent free with our illustrated catalogue of supplies. Don't forget to send name and address on a postal to
JAMES B. MASON & SONS,
1d
Mechanic Falls, Maine.

IN order that I may pay off my debts, and devote my whole time to preaching the gospel, I offer my entire apiaries, consisting of about 90 colonies of Italian and hybrid bees, 60 empty hives, 3 extractors, and other bee-supplies, for sale at a great sacrifice. Persons wishing to buy would do well to correspond with me immediately. I must sell.
JAS. ERWIN,
2tftd
Smith's Grove, Warren Co., Ky.

GOOD NEWS FOR DIXIE! SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. Price List Free.
J. M. JENKINS, WETUMPKA, ALABAMA.
3-24db

ATTEND THE CONVENTION At Albany,

And see the Stanley Automatic Extractor. But if you can not do this, please mail a postal, asking for circular for 1887, with testimonials from those using the machines. Address at once,

G. W. STANLEY, Wyoming, N. Y.

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CONVENTION NOTICES.

The Northeastern Mich. Bee-Keepers' Association will hold its fifth annual meeting, Wednesday, Feb. 2, in the Common-Council Rooms of Bay City. W. Z. HUTCHINSON, Sec.

The Wisconsin State Bee-Keepers' Association will meet in the Capitol, at Madison, on Thursday, Feb. 3, at 9 A. M. I think no argument is needed to show that these conventions, well attended and properly conducted, will be a source of profit to the bee-keeping fraternity, and pleasure to those who attend.

The State Agricultural Convention will be in session at the same place from Feb. 1st to the 4th inclusive, with a very interesting programme. The papers and discussions of this convention will be of interest to everybody.

Hotel accommodations abundant, at any price from one to three dollars per day, and return tickets over the principal roads at reduced rates.

We especially desire the attendance of those bee-keepers who have learned it all as teachers; we more especially desire the presence of those who have not learned it all, for they make the best of pupils. F. WILCOX, Sec.

C. M. GOODSPEED,

THORN HILL, ONONDAGA CO., N. Y.,

Furnishes any newspaper to single subscribers, away below the usual club rates. Our list comprises all the leading papers, and is the lowest-priced list in the field. Alsike, bees, queens, poultry, and small fruit. Write for 20-page catalogue. Mention this paper.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." ltfdb



Recent Additions to the Counter Store.

THREE-CENT COUNTER.

- 1 PLATE, 6-IN., glass, crystal or colored | 28 | 2 60
A little beauty, and handy for many purposes.
- 2 SHOE AND GLOVE BUTTONER | 28 | 2 50
Both on a key ring. All for 3 cents.
- 2 BRASS FERULES for tool-handles | 25 | 2 40
Dozen pkgs., 5-16, 6-16, and 7-16. You may have a dozen assorted or all of one size.
- 2 PATTY-PANS, ROUND, 5-IN | 20 | 1 80
Just right for small pies or maple-sugar cakes.
- 2 PENCIL, LEAD, with rubber cap; 20 cts. per dozen | 17 | 1 50
This is a plain cedar pencil, with an inserted rubber cap.
- 2 SLATE-BOOK, 6 pages and pencil | 25 | 2 40
Much smaller than the 5-cent ones, but very handy.

FIVE-CENT COUNTER.

- 1 SENSATION PICKLE-DISH, colored glass | 48 | 4 75
This is a beauty. The pattern is much like "polka dot."
- 6 SENSATION SALT OR PEPPER BOTTLE | 46 | 4 50
With nickel top; same pattern as the pickle-dish, and colored glass. The top being nicked, it will not tarnish.
- 2 SLATE-BOOK, 6 pages and a slate-pencil | 40 | 3 80
Very handy for taking notes.
- 2 PROPELLING PENCIL | 36 | 3 50
This is a very handsome lead-pencil, black-enamelled, and nickel ends. The point of the lead may be protected, or a new one inserted, when the first is worn out; 6 extra leads in a neat wooden box, for double above prices.
- 2 BRASS FERULES for tool-handles | 40 | 3 80
Dozen pkgs.; $\frac{1}{8}$, 11-16, and $\frac{3}{4}$. We have obtained some more of these that are stronger and nicer, and you may have a dozen assorted, or one size, just as you choose.

A. I. ROOT, Medina, O.

DADANT'S FOUNDATION FACTORY, WHOLE-SALE AND RETAIL. See advertisement in another column. 3btfdb

A BARNES foot-power saw at half price. For particulars, address J. A. ROE, Union City, Ind.

FOR EXCHANGE.—Section-machine and cutter-head, for making the one-piece section; Root's make. Used but little; in good order. Will take \$60.00 for both. Sent from Jefferson, Ia. Also other machinery for hive-making. Write me at Trenton, Hitchcock Co., Neb. E. Y. PERKINS.

A BARGAIN FOR 30 DAYS ONLY.

Any one sending \$1.50 can have one pair of white Rabbits, or one pair Brown Leghorns, or one pair Plymouth Rocks, or 2 sittings of Langshan eggs, booked for April or May delivery. Say which you want. Yours for promptness and satisfaction, O. L. COVER, Covington, O.

ALSIKE.

Write for prices of pure seed before buying, and save money. C. M. GOODSPEED,
Thorn Hill, N. Y.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfdb

SEEDS

Tested, sure to grow. 130 kinds of POTATOES, all the new Beyer Plants. Superior Stock. Prices low. Catalogue free. It will pay to get it. FRANK FORD & SONS, Ravenna, O.

What Mr. Beyer says:

"Please best thanks for the splendid seeds received from your firm. It would be a rather lengthy list if I should name all, but will say that amongst 33 first, and 3 second premiums awarded me at our fairs in Northern Indiana and Southern Michigan, 28 first premiums were for vegetables raised from your seeds. What firm can beat this?" AUGUST BEYER, So. Bend, Ind.

Seed of this quality I am now ready to sell to every one who tills a farm or plants a garden, sending them FREE my Vegetable and Flower Seed Catalogue, for 1887. Old customers need not write for it. I catalogue this season the native wild potato. JAS. J. H. GREGORY, Seed Grower, Marlborough, Mass.

HONEY COLUMN.

CITY MARKETS.

DETROIT.—*Honey.*—The market continues dull, with no change in prices. Best white comb, 12½; Buckwheat and fall flowers, 10@11. Extracted offered at 6@8. *Beeswax*, 23c. M. H. HUNT, Jan. 10, 1887. Bell Branch, Mich.

PHILADELPHIA.—*Honey.*—White clover, fine, 14@15; white clover, fair, 12@13; buckwheat, fine, 11@12; same, fair, 9@10; one and two pound glass sections. Extracted, 6@8, as to quality. *Beeswax*, 20@23, as to quality. Jan. 10, 1887.

PANCOAST & GRIFFITHS,
242 South Front St., Philadelphia, Pa.

ST. LOUIS.—*Honey.*—Market is dull; choice comb, white clover, 1-lb. sections, 12@13. Other grades in sections, 10@11. Broken comb, 6@8; white clover, extracted, in cans, 5½@6. Southern in bbls., 3@5. California extracted, in cans, 4½@5, for dark, or amber; 5½, choice white sage. *Beeswax*, 21@22, as runs; 25, selected. W. B. WESTCOTT & CO., Jan. 10, 1887. 108 and 110 Market Street.

CLEVELAND.—*Honey.*—This market has been very dull the past two weeks. Prices are unchanged; best white 1-lb. sections sell at 13c; 2d quality, 10. Best white 2-lbs., 11@12; 2d, 8@9. Extracted is very dull at 6c. *Beeswax*, 25c. A. C. KENDEL, Jan. 10, 1887. 115 Ontario St., Cleveland, O.

CINCINNATI.—*Honey.*—Nothing new of importance since last report. Demand is very slow for all kinds of honey since Christmas, and occasional concessions have to be made to effect a sale of comb honey.

Quotations have to be made as heretofore; 3@7 cents for extracted honey on arrival, and 12@15 for best comb honey, in a jobbing way.

Beeswax.—Demand is good for beeswax, which brings 20@22c on arrival for good to choice yellow. Jan. 11, 1887.

CHAS. F. MUTH & SON,
Cincinnati, Ohio.

BOSTON.—*Honey.*—Demand very light since the holidays, and we quote: Best 1-lb. white clover, 13@14; same, 2-lb. sections, 11@12; California comb honey, 10@12. Extracted, 5@7. *Beeswax*, 24c.

BLAKE & RIPELY,

Jan. 10, 1887. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Dullness prevails in the honey-market; no change in values since last quotations.

R. A. BURNETT,

Jan. 10, 1887. 161 So. Water st., Chicago, Ill.

NEW YORK.—*Honey.*—There is no change to note in our honey market. The demand is limited, and prices remain unchanged. The finer grades of white honey are getting exhausted, but there is any amount of the poorer grades yet to be disposed of.

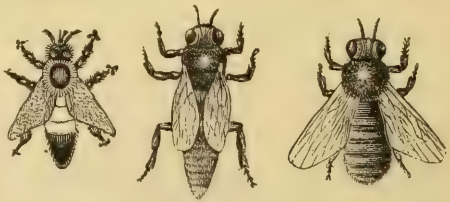
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Vol. XV.

JAN. 15, 1887.

No. 2.

T. P. ANDREWS' APIARY.

A FURTHER DESCRIPTION OF THE SAME.

FRIEND ROOT:—Replying to your request for fuller information in regard to the cut of my apiary in GLEANINGS, I would say that the photograph from which the cut was made was taken with a lens not adapted to this kind of work, as it considerably diminished the apparent size of objects in the background, thus exaggerating their apparent distance. In reality, those rows of hives that look so long are only about $5\frac{1}{2}$ rods long. The apiary is laid off in squares, by streets eight feet wide, crossing each other at right angles. The one broad irregular street shown in the cut running from east to west is an error of the engraver. The squares between the streets are one rod square, and contain sixteen hives—four rows of hives each way. This puts the hives a little more than five feet from center to center. I have not found that the bees mistake their hives to any appreciable extent.

The honey-house is 14 by 18 feet. The south side is seen in the picture. The northwest corner of this building is occupied by a honey-tank holding 5000 pounds. It is securely made of 2-inch pine planks; is lined with tin, and rests on a strong frame, high enough to draw off the honey into barrels or cans. At the south side of this tank stands a four-frame Stanley honey-extractor. The pail in which the honey is carried from the extractor to the tank, stands in a deep rectangular tin pan, which I made several years ago, to use in making fdn. from plaster-of-Paris casts. This pan is to catch any accidental overflow from the honey-pail, and stands

between the extractor and tank. A piece of oil cloth, hanging from the upper edge of the tank, reaches down into this pan, to catch any drip from the pail while being emptied.

A much more convenient honey-house could be built on a side hill by placing the honey-tank on a lower floor, as does friend Christie, of Iowa.

For convenience in getting the full combs to the extractor, and the empty ones away, I have made two openings in the south side of the honey-house, about six feet apart, and one foot above the floor. I also made two sets of rolls, each about eight feet long. They are like ladders with rollers instead of rounds. These ladders are placed so as to project out through the side of the building about two feet, far enough to set a hive on before sliding it in on the rolls. My comb-boxes are simply hive-bodies with a thin bottom nailed on, and covered with a piece of cloth, one edge of which is tacked to one side of the hive, the other edge being tacked to a slender stick which keeps the cloth straight, and holds down the edge. Three of these comb-boxes are placed side by side in the cart, which I will describe at another time, and are drawn out to the hives, and filled with combs. These are taken back to the honey-house, and shoved in on the first set of rolls. The cart is then drawn forward to the next opening, where three boxes of empty combs are rolled out to fill the cart for a second trip to the hives.

Farina, Ill., Jan. 7, 1887.

T. P. ANDREWS.

Many thanks, friend A. You certainly have things very conveniently arranged. We should be glad to have you describe more fully your hive-cart.—In regard to the distance of hives, ours are 7 ft. from center

to center. Besides this, the entrances are turned to all points of the compass. Yet we find that bees in early spring and late in the fall are very often confused as to the exact location of their hives.

BUMBLE-BEES.

SOME OF THEIR PECULIARITIES.

THE question of E. D. Howell, in GLEANINGS for January 1, page 26, brought to my mind the fact that we have in Hilliard, O., an intelligent young man who, about seven years ago, during one season, had several colonies of bumble-bees. His first colony was secured early in the spring, and consisted of a queen and one other bee, seemingly just hatched, and a small bit of comb, not more than three cells, and these contained no eggs or brood, as he now remembers. The nest, bees and all, was placed in a box about eight by twelve inches, turned upside down on a board about two feet from the ground. The entrance was about one-half by two inches. He knew nothing of the inside of this nest-box until late in the fall; and when he opened it, he found neither honey, brood, nor bees, either dead or alive, but one beautiful comb, nearly round, and measuring about seven inches in diameter. The queen was long and yellow, while the workers were much smaller and quite dark. There was a middle class, which seemed idle, and he thinks they were drones. The other colonies were secured later, and seemed to be more or less demoralized all the season, doing their work in an inferior manner, though this may have been their normal conduct and skill, as they were a different bee from the others, being much smaller and much more inclined to sting. Their nests were also empty when opened in the fall.

My young friend gave me many interesting facts about his bumble-bees and about bumble-bees in general. He has never detected the least symptom that they have the swarming habit, and gives it as his opinion that they never swarm. In early spring he usually finds each colony composed of a single bee—the queen—and usually about a dozen eggs, the eggs being something smaller than hemp seed. His colonies kept their houses very clean and tidy; and the fact that they would invariably walk to the edge of the bottom-board, and, with a quick right-about movement, dump their excrement beyond the board on the ground, was a very prominent characteristic; and the queen was no exception in this particular. They also appreciated kind treatment, for while they *never* molested him in the least, they would not allow his younger brother, who would tease them by throwing chips at them, to stay in the neighborhood of their box homes; they would follow him for rods, that they might sting him, and they sometimes got in good work on the young rogue. They always kept a guard at the door, and in the evening this guard would close up, with grass, the entire entrance, except one little place, where she would sit and look out. In the morning this grass would all be taken away, but was replaced again each night. In very hot weather the queen and many of the bees, perhaps all of them, would sit on the bottom-board, outside of the hive. In his first colony he counted at one time as high as nineteen sitting outside at one time; but he had no means of knowing whether they were all the

colony. One day he moved one of the boxes about eight inches to one side, and a bee that came in from the fields tried for about fifteen minutes to find its home, but could not, so he helped it into the hive.

Hilliard, O., Jan. 8, 1887.

J. S. RICKETTS.

Many thanks for the interesting facts you have given us in regard to these bees. We have frequently had them under old bottom-boards in our apiary; and while we pursued our regular work, minding our own business, they gave us no trouble; and, as you may have read in October 1st issue, we could handle them, or pull apart their nest, without their making even a show of resistance or attack. Not so did they behave toward the small boy, equipped with a paddle and a pole to poke their nest up.

MAKING EGGS HATCH WHEN TAKEN FROM THE BEES.

TRANSFORMATION FROM THE EGG TO THE LARVÆ.

EDITOR GLEANINGS:—When first reading your A B C, when I came to that part relating to "Bees," you say that you have "never been able to get eggs to hatch when taken away from the bees," although the temperature was carefully preserved. At that time I had had but little experience in matters of that kind; but being of an inquisitive turn of mind I decided to make some experiments in this direction. However, I put the matter off from year to year until the summer of 1884, when the following experiment was carefully conducted: I placed a sheet of foundation in the center of the brood-nest, and left it there until it was filled with eggs, and a small area of larvæ had appeared on either side. I then removed the comb, and with the point of a pin I drew a line carefully dividing the larvæ from the surrounding eggs; the comb was then placed in the nursery, and left over night. An examination the next morning showed that no additional larvæ had been hatched. I then marked half a dozen cells containing eggs next to or joining the little patch of larvæ. With a little spoon I dipped out the milky food from the cells containing larvæ. I placed this food over and around the half-dozen eggs that were marked. I then replaced the comb in the nursery. Two hours later I made an examination with a glass, and found that, in each of the cells thus treated, larvæ were present, but no development was discovered in cells not treated with the milky food. These experiments were successfully carried on immediately around the patch of larvæ previously formed, for a period of 48 hours, after which no development could be had. I then treated a like number of cells near the outside limit of the field occupied by eggs, and had the satisfaction of seeing perfect larvæ in 80 minutes after supplying the milky food.

Another point worthy of note was the disappearance of the tissue inclosing the larvæ after the action of the milky fluid. From these experiments it would seem, first, that bees' eggs do not hatch, but are liberated by the action of the acid contained in the food for young bees, the larvæ having no means of biting or breaking his way out of the prison wall that surrounds him. Second, the disappearance of these tissues results from the neutralizing or destructive action of the acid upon the same. Third, that larvæ will stand 48 hours of confine-

ment, without physical development. This fact will perhaps account for the discrepancy of time in the hatching of queens being from 16 to 18 days.

Siam, Ia., Dec. 25, 1886.

R. B. ROBBINS.

Your experiments in making the queen's eggs hatch are very interesting. I have carefully looked through Cheshire's book, "Bees and Bee-keeping," upon this matter, but can not discover that he touches upon the point you bring out. If your experiments were carefully conducted it would seem that the egg, in order to hatch, requires the milky food; but as to whether this food absorbs the shell, or covering, of the egg, I must confess that I feel a little uncertain yet. Perhaps Prof. Cook, or Prof. J. Comstock can give us some light upon this matter.

A FEW POINTERS FROM THE OHIO STATE CONVENTION.

A FEW NOTES FROM ERNEST.

JAN. 14. I have just arrived home from the State Convention, held at Columbus, Jan. 11, 12, and 13. As we are about to go to press with this issue, I will throw out a few hints which I gathered there, in advance of the regular detailed report which will be sent in for next issue by the secretary.

PREVENTING THE GRANULATION OF LIQUID HONEY.

Our readers will remember that we have once or twice had occasion to refer to the liquid honey sent us by Mr. Goodrich. This honey still retains its beautiful transparency, although it has been subjected to varying temperatures. Mr. Goodrich, the producer of said honey, was at the convention. By request he gave his manner of keeping his honey, which, in brief, is essentially as follows:

The honey is extracted, and drawn into sap-pails where it is temporarily covered with cloth. To prevent its granulation he heats the honey in the pails to a temperature of about 120 or 130 degrees. This he does by placing a number of said pails, filled with honey, in a vat or tin trough of hot water, heated to the proper temperature. There is thus no danger of overheating the honey. While the honey is being heated it is stirred, so that every portion may be heated alike. He ascertains the proper temperature by inserting a thermometer in the honey itself, and not in the water, as we should naturally suppose. The honey is then put in Muth's 2-lb. bottles.

Of course, the idea of heating honey to prevent granulation is not new; but the manner of doing it will, I think, be valuable to some of our readers. Heating honey is apt to take away some of that delicate flavor; but I think all who taste the Goodrich honey will acknowledge that it is as fine as the finest.

FULL SHEETS OF FOUNDATION, VERSUS STARTERS OR EMPTY FRAMES.

I was surprised to see how many reported favorably in regard to frames with starters

only. I then explained the Hutchinson plan, and a number thought it seemed reasonable. No less authority than our good friend Mrs. Jennie Culp favored full sheets of foundation, notwithstanding, and she was backed by Mr. A. S. Goodrich.

WHAT A WOMAN CAN DO.

As you may guess, Mrs. Culp, of Hilliard, O., was at the convention, and I hardly need say that we all enjoyed hearing her tell of her experiences with the bees. Her kind face, and pleasant manner of speaking, make her one of the welcome members of the convention. Indeed, I think it is not too much to say in her favor, that I doubt if there are many bee-keepers among the sterner sex who are her peers as honey-producers, even though she is nothing but a little woman. Let us see: She took about 8000 lbs. of honey last season, and increased from 40 to 65 colonies. Her average per colony was, as you see, 200 lbs. She did all this work unassisted, with the exception that she got her pupil, J. S. Ricketts, to help her a few hours on one or two days. Finally, in the midst of the honey-flow, when she discovered that her strength was not equal to her energy, she left the apiary and went to camp-meeting to recruit up. One of the members of the convention then asked her why she did not get some one to help her, and thus have secured a very large average per colony.

"Why," said she, "I couldn't get anybody to help me, either for love or money; what could I do?"

She then stated, that, if she had not had the "light wheelbarrow sold by Bro. Root," she never could have handled those heavy crates as she did. Her honey has been selling for 16c for extracted, and 18c for comb honey. She mentioned one instance which I will relate here:

She had taken so much honey from one particular colony (nearly three hundred pounds) that she marked on one side of the hive, "I shall not expect any thing more from you this season." This was toward the close of the honey-flow, and she feared to drain it too closely. She had, however, left the surplus-receptacles on the hive. "A few days after," said she, "I thought I would just peep in and see what they were doing." She found it full of honey. On taking off and weighing, the scales showed 95 lbs. of honey.

These facts were not told us by the lady with any spirit of boasting—in fact, it was with some difficulty that we were able to get her to tell how much honey she had secured from the bees the past season. She has a good locality for bees, but I believe her management has a *great deal* to do with her success.

There are many other things that I should like to speak of; for instance, Mr. J. W. Newlove's manner of preventing, to a large extent, the swarming fever; Mr. Frank A. Eaton's method of inducing bees to go into sections, etc.; but I fear I should be encroaching upon the secretary's report. I believe, however, I have enlarged upon some things of which the nature of a report would not permit.

MR. T. F. BINGHAM.

His Visit at The Home of the Honey-Bees.

SMOKERS, SHALLOW HIVES, ETC.

MR. T. F. BINGHAM, of smoker fame, on his way to the convention at Albany, stopped off at Medina, partly on business and partly for a visit. I will say, at the outset, that whenever one of the old veterans in bee-keeping finds it convenient to visit the Home of the Honey-Bees, so-called, I regard it as a special privilege to show him about, and ask him all the questions I can. Whether he be a supply-dealer or not, he is at liberty to appropriate any idea he may find useful to himself, even if he should intend to use said idea at future date in competition to our business. This has always been our policy; and while we may sometimes have suffered in consequence of this kind of competition, taking into consideration the little hints and ideas we gain in return—we never lose.

Mr. Bingham and ourselves, for a number of years back, have made and sold smokers, and, as a matter of course, our goods have come more or less into competition. As was to be expected, in our conversation yesterday we freely discussed the relative merits of the Clark and the Bingham smokers. The inventor of the latter, after noting the manner in which we made the Clark, kindly offered suggestions, or, if you please, "short cuts," in its manner of construction; and while we *may* use said suggestions, we shall respect the principle of his smoker, which, indeed, Mr. Bingham gives us the credit of doing. When we were discussing this smoker question I inquired what he thought of the shaving fuel which Mr. Heddon recommended in his book, and which had been talked of lately in the journals.

"Well," said he, "I prefer hard-wood chunks to any thing else."

He then explained that the shavings were too apt to cause sparks, and, besides, would not last as long as the hard wood. He stated that it was a prevalent opinion among bee-keepers that rotten wood is the fuel for smokers. This opinion he regards as a great mistake. The rotten wood will not only burn out too quickly, but is open to the objection of shavings; namely, a too frequent cause of sparks.

While no doubt friend Bingham is correct as regards the proper fuel for his own smoker, yet with the Clark the difficulty with sparks from rotten wood and shavings is to a great extent obviated, I think, by virtue of the cold-blast principle. Of course, I am not forgetful of the fact that the Bingham possesses good features which the Clark has not. I will not, however, take space to discuss it here, but defer it until next summer, when I propose trying both smokers side by side, and I hope, letting them stand solely on their own merits.

I asked Mr. Bingham how long he could make his smoker last, without going out, charged with the hard wood. If I am correct, his reply was that it would last *all day* without refilling, and that it would give him smoke just when he wanted it. This, surely, is about all that could be desired. But it

seems that Mr. Heddon, his "friend," Dr. Miller, and others, prefer the shavings. Perhaps, however, these latter gentlemen have not acquired the knack of burning hard wood.

SHALLOW HIVES.

Knowing that our friend Bingham for so many years back has used, and very successfully, too, the shallow closed-end frame ($6\frac{1}{2} \times 23$ inches), I took the opportunity to question him in regard to the working and merits of such a frame, with which he says he has had an experience of nearly 20 years. A few facts from him will be of interest just now, when the discussion of shallow frames is before bee-keepers.

Mr. Bingham's frame is $6\frac{1}{2} \times 23$ in., as already given, with closed end-bars $1\frac{1}{2}$ inches wide. This frame has no bottom-bar. The top-bar is a stick, $\frac{3}{4}$ inch square. At each end of this is nailed the closed end-bars, the stick being so nailed that one of the corners will form a comb-guide.

One would naturally suppose that a frame of this description would hardly be secure enough, and that the end-bars, on account of the absence of the bottom-bar, would be easily knocked out of "whack," as the expression runs; but Mr. B. assured me that such was not the case. Eight of these shallow frames, or any other number as convenience may require, are held securely together by compression. This is effected by a well-known principle; namely, a wire loop, or link, each end of which is hooked over a screw-head. A little stick, equally distant from each screw-head, is made to spread the wire taut.

It did not seem to me that such a contrivance would hold securely enough; but Mr. Bingham assured me that he had used it a good many years. To satisfy myself more fully I took seven shallow-depth closed-end frames which we happened to have on hand, and looped them together, as described above. I dropped the seven, as thus secured, on the floor, and scuffed them about with my feet, and yet they held together.

Mr. Bingham told me he could invert his brood-chamber if he chose to do so, but that he did not find it necessary. If I remember correctly, I believe he said he did not even alternate the sections of his hive, although it could easily be done. I then asked if, from his experience, it were practicable to handle these shallow hives instead of frames. He replied, that it was possible to a very large extent. He told me he had not handled the frames of some hives for several years; that he could perform many of the needed operations by simply handling *hives*. By grasping one of his shallow sections, and holding it up to the light, he could hunt out the queen-cells on the several frames at once. He, said, that in a shallow brood-nest, the exact location of the queen can often be determined by the peculiar commotion of the bees toward a common center. Then, if he chooses to catch or view her majesty, he loosens and spreads apart the frames, and selects the one whereon she is to be found. He can also, when occasion requires, shake a large part of the bees from whole sections at once. In short, our readers will see that

Mr. Bingham verifies Mr. Heddon's statement as to the possibility of handling *hives* instead of *frames*.

Although the construction of the Bingham hive differs in detail from the Heddon, yet, in a few of its fundamental principles, the former is similar; as, for instance, closed-end shallow frames, held together by compression; and the possibility of handling *hives* instead of *frames*.

I hope I am not trespassing on any of Mr. Heddon's claims, as I am sure Mr. Bingham concedes to Mr. Heddon the right of his invention. Mr. B. has told me that he is glad that Mr. H. has brought out his invention.

In conclusion, I desire to say that all who shall be so fortunate as to make Mr. Bingham's acquaintance will find him a pleasant conversationalist—in short, a gentleman. While he has a keen sense of justice, and his own rights, they will, I think, find him disposed to be fair.

EXTRACTED HONEY.

E. FRANCE'S VS. HEDDON'S METHOD.

HAVING read Mr. Heddon's article in GLEANINGS, Dec. 1, entitled, "Extracted Honey," etc., I arise to make a few remarks on his system as he has it laid out. I understand he works to a large extent for comb honey and considerable extracted honey. Now, as I am in the extracted-honey business quite largely, I study carefully every thing I can get on the subject, especially from as good authority as Mr. H.; but I don't see how it is possible for me to wait until the honey-season is over, and then do our extracting. We possibly could work our home yard in that way, but I don't see how we can work our five yards, away from home, by his plan, as we have nothing but a tent to work in, and that we carry with us. We extract four and sometimes five times at each yard, taking out from 1500 to over 2000 pounds each time from each yard. Now, to tier up combs to hold the honey, we should need to have combs to hold 9000 pounds of honey in each yard. As about 2000 pounds of honey would be required to winter each yard, we should have spare combs in each yard to hold 7000 pounds of honey, or, for the six yards, spare combs to hold 42,000 pounds (which was our surplus for the year 1886). As we have no place away from home to store the spare combs where they would be safe, they would all have to be hauled home; and what a time we should have with robber-bees, extracting and fussing with all those spare combs after the honey season is over, which closes with us from the 5th to the 20th of July!

As for the quality of the honey, judging from the reports of my customers, many of them dealers of long standing in the honey-trade, I am led to believe that our honey is A No. 1, and I believe our location has very much to do with it. We are located among the bluffs of the Mississippi, still away from the river, where the hills are dry; and the honey, as a rule, is thick when gathered. Often the honey in new combs is so gummy that it is impossible to extract it and save the comb.

I don't know any thing about Mr. Heddon's locality; but judging from his place on the map he is near the lake, and I should expect the country to be flat, and more or less wet, and the honey may re-

quire tiering up to dry it out—very much more so than among the hills here. Bee-keepers living in a hilly locality extract often, and there is no talk of unripe honey. I know there is no use of so much fussing here to get first-class ripe honey.

Platteville, Wis.

E. FRANCE.

Thanks, friend France. I think it is quite likely, as you suggest in your last paragraph, that the difference in locality has much to do with the matter of ripening honey.

CONVENTION AT ALBANY.

NOTES BY THE WAY.

IT is now Monday morning, Jan. 10, and I am waiting for the train. I have got some postal cards, addressed to myself, in my pocket, and whatever I find of interest I propose to send back to the printers, and have them give you the latest intelligence up to the moment of going to press.

I am now at Cleveland, Ohio. I find that friend Kendel, of the Cleveland Seed Store, seems to be doing a fair business in comb honey. One-pound sections, best, bring 13c; second quality, from 10 to 11c. A lot that looked very fine, he says don't sell, because customers have found the sections inside do not turn out so nice as those packed next to the glass. Do you see how it works, friends? Glass sections do not sell well in Cleveland, unless at a season when no other is to be found in the market.

Mr. K. has an ingenious method of his own invention for testing seeds. A coil of gas-pipe is placed in the fire-box of the base-burning stove that warms the store. Proper attachments carry the pipe under benches near the window. On these benches, small pots containing seed are placed, each pot containing 25 seeds. By counting the number that vegetates, the percentage can easily be estimated. The same coil of pipe warms a tank of German carp that seem lively enough, even in the depth of winter. This arrangement seems to answer every purpose of a regular hot-water warming apparatus; but altogether it did not cost over \$10.00, aside from the cost of the pipes, which was about \$40.00. A sort of "stand pipe," with which the ends of the coil are connected, allows room for the expansion of the water. By means of such an apparatus, any part of a building may be warmed, and the consumption of coal is but little more than what is ordinarily needed.

I found lettuce from Cincinnati already on the Cleveland market. It is a small variety, that does not make a head. It is very crisp and tender, and seems to suit this market best. I succeeded in selling the crop of Boston Market in our greenhouse at home. I was pleased to find at friend Kendel's the seed of this Cincinnati lettuce, and a package was mailed back home to be sown in the greenhouse at once.

At the office of the *Ohio Farmer* I was pleased to make the acquaintance of the editor, M. J. Lawrence. Their circulation has now become so large they keep two large Campbell presses running constantly. Quite

a goodly company, both of men and women, assist friend L. in getting out weekly one of our best agricultural journals.

I am now writing on the cars, *en route* for Albany.

These fast trains do not stop for supper, and the dining-room car is therefore the only chance. A dollar for supper seems even worse than a dollar for a dinner; for who wants to eat a "dollar's worth," or any thing like it, just before going to bed? However, as I am employed by the readers of GLEANINGS to travel and take notes, I thought I would see if I couldn't get something out of even a "dollar supper" for their benefit, and I got it. What do you think it was? Why, this: I found on the bill of fare, "Beefsteak and Mushrooms;" and as I had noticed in the eastern market reports mushrooms at \$1.50 per lb., I have been getting the mushroom fever. They are to be raised in winter in a warm cellar or cave. Mammoth Cave is said to answer nicely. But suppose I get some raised how shall I know when they are just right, and fit for market? Why, if they are just like those I had on the dining-room car, to be sure they are right.

Well, it is after supper, and mushrooms are tiptop. They taste a good deal like those that grow in the fields in summer time. I believe there is money in them, grown in winter. "Gardening for Profit" tells all about growing them.

A farmhouse is on fire this bitter cold night. The roof is just falling in as we rush by. The family doubtless fired up the stoves strong to keep out the frost, and this is the result. Home, and all its contents gone. Take warning, friends; look to your flues and chimneys. When the weather is severe, and you are firing heavy, keep watch of things. Fathers and mothers, look after your homes and little ones.

Continued next issue.

FIRST-CLASS COMB HONEY.

THAT WHICH HAS REMAINED LONG ON THE HIVE,
THE BEST.

I HAVE just been reading what friend Heddon says, on page 882, about extracted honey. I believe he is correct, and also that what he says in regard to extracted is equally true of comb honey.

Friend Root, on page 77 of the A B C book you say, "Very white new comb honey is seldom of the fine, pure, sweet flavor of honey that has been a long time capped over, such as is found in the dark-looking comb." You also tell us about that honey which you left on the hives until winter, and then cut out of the frames, which was the nicest, richest honey you ever saw or tasted. You don't get much of such honey now. No, the most of our comb honey now is taken from the hives as soon as finished, to prevent its being soiled; and the consequence is, a large part of the honey found in our markets is very white and nice-looking; but when it is eaten it doesn't give satisfaction. The fact is, it is nothing more nor less than green honey. If you were buying for your own use, you would not buy such honey. I think you would get that which is much better, except in looks, for from 2 to 5 cents

per pound less. I could not help thinking of this when you spoke of that "snowy white" honey, in GLEANINGS recently, which you were selling for 18 cents. Such honey will sell well, but it will not sell next year's crop. With such honey it would be difficult to develop a market in villages and country places; people will buy it for awhile, but will soon get sick of it, and "stop short off," as friend Martin says. I think there never will be an overproduction of first-class honey, either comb or extracted. The trouble is, only a small part of the honey produced at the present day is first-class in every respect.

I believe this is an important matter, and I think that, if the brethren would all take hold and "pull together," instead of sitting down and crying overproduction, we should soon see an improvement in the honey-market.

O. G. RUSSELL.

Afton, N. Y., Nov. 29, 1886.

Thanks, friend R. While I think you are correct in the main, I can not think that nice white honey that has been taken from the hive as soon as capped is "green" or unripe honey. We have been selling just this class of honey, and it has always given good satisfaction. I believe, however, as stated in the A B C, that honey long capped over has generally a little finer flavor; but whether it were better to sacrifice the snowy whiteness of our market honey for this slight improvement in flavor, I have my doubts.

MANIPULATING FRAMES.

POND'S METHOD.

I E. POND, Jr., has got hold of a correct principle in handling frames for the production of comb honey. What is the use of having movable combs if we do not take every advantage of so great a principle? I am pretty sure that another season will demonstrate the fact to the satisfaction of every one who will take the trouble to experiment. To illustrate his plan: I will state my practical application of it by describing my hive. I use the ten-frame Gallup hive, frames $11\frac{1}{2}$ in. square. Hives inside, measure $12 \times 12\frac{1}{2}$ and 15 inches long; the frames hang crosswise; and the 10 frames, spaced $1\frac{1}{2}$ inches, just fill the 15 inches. Now, in the opening of the clover in the spring, I just shove the ten frames up and put in a wide (2-in.) frame at one end, filled with 4 sections and fdn. Then I have ten brood-frames in the space of 13 inches. This, I think, is about right. At the proper time I set on top my case of pound sections, and so work for pound section honey till the close of the season, or about the last of July. I then take off and put away all top cases of 1-lb. sections. I now open the brood-nest, take out the wide frame at the end, and I find four $1\frac{1}{2}$ -lb. frames of nice clover honey—six pounds or more, No. 1 clover honey. I now proceed to pull back or spread the ten brood-frames on the 15 inches, which puts them $1\frac{1}{2}$ inches from center to center, and they will find enough during the fall flowers to build out and fill up for winter. We never get any surplus here in Southern Missouri in the fall, but they get enough in September to winter well. I should like to hear others report on this plan.

W. H. RITTER.

North Springfield, Mo.

A CHAPTER FROM REAL LIFE.

FORGETTING TO CLOSE THE DOOR OF THE HONEY-HOUSE, AND THE CONSEQUENCE.

IN the bill of goods I ordered of you were a lot of nest pails. I ordered them for the purpose of extracting honey. There was but little call for the large pails, while I supposed they would sell the best. I could not dispose of them for what they cost me, consequently I have quite a number on hand. I found that quart pails with 3 lbs. of honey sold by far the most readily, and I ordered a gross of them from Fort Wayne. They cost a little less than 5 cts. apiece, including freight, and in them I sold the remainder of my extracted honey very readily for 30 cts. each, including pail.

I had a ton of honey, including section and extracted. I commenced selling sections at 14 cts., but most of them for a shilling, and the dark, or fall honey, for 10 cts. I had 24 swarms in the spring, and put 54 in winter quarters. Though they apparently had honey enough for winter stores, they were dying badly, and some were affected with dysentery.

I was compelled to move my bees to keep good friends with my neighbor who owned land but a few rods from where they were, and I would not have a quarrel with my kind neighbor for the worth of the bees.

ITALIANS, BLACKS, OR HYBRIDS—WHICH?

I have Italians, hybrids, and blacks, in my apiary. As honey-gatherers, I know no difference. Some of the blacks are the most docile bees I have, while others of the Italians and hybrids are too vindictive to handle without a quantity of smoke. I have had but one swarm ruined by worms in many years, and those were blacks. After filling nearly 100 sections, they took to swarming, till but few bees were left; then the robbers ruined them, and the worms made a clean sweep of them. I would not care for Italians, if I did not hate to hunt black queens so badly.

JUST HOW I GOT CAUGHT.

It has been a very busy season with me, putting up and repairing buildings, with an abundance of work on the farm; and being of a nervous temperament (some like friend Root) I often get in a hurry, and from a fast walk I would get into a run. I had been taking off sections, and, for want of time to put them on the shelves, I packed them helter-skelter on the floor of the honey-house till a more "convenient season" to put them away. It was near the close of the honey season, and bees got crazy at the slightest smell of honey. In my great hurry one day I went into the honey-house for something; and when I went out I slammed the door after me, not thinking but it was fast, and went about my business. After awhile, wife called me, and said I had better look and see what the bees were doing. I did look, and, sure enough, there were bees enough to make two good swarms, in the house, on the windows, and piled on the sections; and when I went in they "piled" on me too. If ever a fellow was stumped, I was. But necessity always had been the mother of invention; and if it failed this time it would be the first with me. I said, "Wife! I'll kill them with sulphur," and at it I went, and made smoke enough, as I thought, to kill any thing. I closed the door, and left them to their fate. In half an hour I came

back and found but few dead. I thought best to renew the sulphur smoke. I did so, but it almost choked me, and I slammed the door after me, and left them a second time to their fate. After awhile I went back and found the door standing wide open, and such piles of bees I never saw piled into one room. I said, "What shall I do? what shall I do?" and what would you have done, friend Root?

I have read somewhere, that, if at first you don't succeed, try, try again. I said, "Wife, I have got to kill all my bees" (57 swarms). But another thought struck me. I had seen bees smoked to death, so I put in kettles and iron dishes, after making fires in them, and piling them full of trash, just as we used to smoke mosquitoes when it was all woods around us, and I was careful to shut the door this time. The house was made tight, intended to keep out the moths and millers, and the smoke soon began to tell seriously on the bees, but I let them sweat till not one could fly, and I could not stand it longer than I could hold my breath. I let in what air I could through the window-screen, occasionally opening the door; and when the smoke cleared away so I could move the sections into the closet, brushing off the dead bees, it was a fearful-looking place.

I said, "Wife, I have conquered at last." She said, "You look as if you were about conquered too."

You had better believe I was happy. Now you will ask what about the honey (for there was the best part of a ton). Was it not ruined by the smoke? Of course, I supposed it was. At first, for a week or two it smelled too smoky to be salable, but it gradually wore away by giving it all the air I could, till that which was nicely capped had no taste of smoke; but all that was uncapped retained the smoky flavor a long time; but it is all disposed of, except what we need for our family use. I have always been particularly fond of seeing and handling bees; but I pray that I may be excused from handling any more in a honey-house.

La Otto, Ind., Dec., 1886.

E. S. HANSON.

Friend H. wants to know what I would have done under the circumstances. Well, I would not have killed my bees, whatever I did. You say you were happy after you got them all killed. Now, the thought of those murdered bees would not have let me sleep nights had I been in your place; however, there is no use wasting words on that part of it, for they are gone now. I have been through just about the same experience a good many times, and I will tell you how I manage. Of course, the first thing is to shut the door; and, by the way, the latches to the door of the bee-house ought to be so arranged that they shut easily and securely every time. I have often thought that a spring to the door, such as we have on our screen-doors, would be a good investment, then have the catch so it will fasten the door, no matter where or how the door may be left. Prevention is better than cure, you know. But if the bees do go in because of the door being fastened open, or something of that sort, shut all the doors and windows securely, so that no more can get in. When the bees collect in a large quantity on one of the windows, raise the window, and with a brush broom, or something similar, get out as many as possible.

When another lot collects, let them out in the same way, and in a very little time you can have every bee out of your room. In view of such occurrences I would have a good wide shelf just below the window, and keep this shelf clear of rubbish. Then at any time, by raising the window a little you can easily brush out all the bees that have dropped down, so as to keep your house tidy and neat. Where there are only a few sections that the bees can work on I would put them in a tight box or cupboard. Simplicity hives piled up will hold frames of comb or sections of honey very well temporarily. Now, if you want to cure your bees of hanging around the honey-house doors or windows, just let them go in the room and out at pleasure, until they are satisfied there is not a drop of honey to be obtained. If it is during a season when they rob badly, Simplicity hives piled up may be a rather bad arrangement, for bees smell the honey through the cracks. In such a case, cover the pile of hives with a large sheet, or, better still, an oil cloth, such as is used to spread over wagons; or if your room is not large enough, open your bee-tent, and spread that over it. Surplus comb honey ought to be very secure indeed, to prevent bees from scenting it. Friend Heddon and some others have recommended double sheets of wire cloth, with a space between them. This prevents bees on the inside from passing honey through to those on the outside; but whatever way you take to make it secure, don't have any mistakes about it, or you may have such scenes as our friend describes so graphically in the above article.

SEPARATORS OR NO SEPARATORS.

ALSO SOMETHING IN REGARD TO THE WORKING OF HEDDON'S NEW HIVE.

I ENTIRELY agree with G. M. Doolittle, on page 839, that we have been making a move in the wrong direction in regard to separators. Until three or four years ago I think it was pretty well settled that comb honey could not be satisfactorily produced without separators. About this time a number of comb-honey cases appeared, designed to be used without separators. Some of these were very convenient to use, and, aside from the non-separator feature, were much better than the old systems. These were "boomed" by those favoring them; and from being written and talked about so much it became fashionable to do without separators, and many who really preferred them were ashamed to admit that they could not do without them. Everybody followed his neighbor.

One of the most characteristic traits of the American people is their tendency to popular crazes, a tendency to take up every thing that is new and attractive, and carry it to extremes. Never more strikingly shown than in their amusements—as, for instance, roller-skating and progressive euchre—this tendency has its influence in every department of life. Any business that is more than ordinarily profitable is rushed into, and almost immediately overdone. Bee-keeping is suffering now from just such an inundation on a small scale. But this is a digression.

With all the hue and cry against separators, everybody seemed to think that everybody else was giving them up, and that he must fall into line or be left behind. How the movement against separators was forwarded, may be learned from the way the subject was handled at one of our conventions. After some talk in which the anti-separator men aired their views, while those who favored separators for the most part stood back and listened, the subject was put to vote, and all who could secure marketable honey without the use of separators were asked to stand up. Of course, the most of those who voted at all stood up. Almost any one can produce marketable honey without separators. That is not the question. The report of that convention, stating that three-fourths of its members could get along without separators, was, to a certain extent, misleading, as giving the impression that they were in favor of doing without them. I do not think this was the sentiment of the convention. I think most of them were in favor of separators, and continued to use them, and believe in them to-day. But their half-unwilling admission, that they could get along without separators, no doubt had its influence in inducing others to try the non-separator case, who, finding themselves reasonably successful with it, became loud in its praise.

I can produce comb honey without separators. I have done so successfully. This season I had over 2000 lbs. of honey made without separators. There may have been 25 sections that could not well be crated. Perhaps 200 required a little extra care in crating, while the rest could be put together anyhow without the combs touching. Still, I know that, without extraordinary care, I should not obtain as good results every season; and as I can see no very important benefit to be derived from dispensing with separators, I shall continue their use, and shall probably make no more cases to be used without them. I can certainly get as much honey by using separators as without them. When they are not used there is constant annoyance from the unfinished sections at the sides, and particularly in the corners of the case, unless the case is left on until all are finished; and no one who expects to produce the best honey can afford to do this. With separators the work of the honey-producer goes on much more smoothly and satisfactorily, and the marketability of the honey is not so dependent on chance.

The wide-frame system is, in my opinion, the best way of using separators, but they should not hold over one tier of sections, and should be so arranged that they can be tiered up to any desired height. Expansibility and contractibility are both valuable features in any hive. A hive should be so made that its capacity may be readily and quickly enlarged or contracted, to suit the extreme requirements of any colony, and so that these changes may be made gradually.

This brings us naturally to a discussion of the Heddon hive, of which more, perhaps, has been claimed in this direction than of any other hive. I have used a number of them during the past season, some of them since early spring. I am thus enabled to form a tolerably correct idea as to the merits of the hive. I had formed a very favorable opinion of it before I had ever seen it, and I must say that, in practice, it nearly fulfilled my highest expectations. There were some drawbacks, how-

ever, which I think ought to be mentioned. You have all heard of its advantages, so I will not dwell on them, but only refer to what I consider its weak points, and its failures to do what has been claimed for it.

The first shock that was given to my good opinion of the hive was when a too ambitious queen found her way upstairs and filled nearly every section in one case with brood. This, of course, can easily be prevented by a queen-excluding honey-board.

A more serious trouble came when dry weather caused the end-bars to shrink so that the set-screws no longer held them tightly enough; and in hives that had been inverted, the frames slipped down until they rested on the bottom-board, almost closing the entrance. Then rains came, and the sides of the hive and the wooden screws swelled so much that I could not turn said screws; and colonies that I particularly wanted to examine might almost as well have been in box hives for all I could do with them. The hives, I may say, were well painted, and the screws had been soaked in linseed oil.

The frames are not nearly so movable as ordinary frames, even when they are new; and I am afraid that, with time and use, propolis will find its way between the frames and the ends of the hive. The heat of summer will melt this propolis, and stick hive and frame so tightly together that, in time, it will be difficult, if not impossible, to remove frames from the hives. This is a very serious objection to the hive. I do not think we can afford to abandon movable-frame hives.

"Why do you want to handle the frames?" I think I hear some one say. Because foul brood is abroad in the land, and an experience with it that has cost me several hundred dollars has taught me that it is next to useless to attempt to get rid of the disease unless it can be detected in its early stages, and that this can not be done except by frequent and thorough examinations of the brood-combs.

I would most willingly adopt the principle of handling hives instead of frames if it were not for foul brood; but with this dread disease threatening me I am afraid to adopt a hive and frame that will make it any more difficult to detect and subdue it.

My next count against the hive is, that it has utterly failed, with me, in one of the strongest points claimed in its favor. We have been told that, by its use, we could secure all the honey in sections, leaving the brood-chamber empty. I found, though, that, as the end of the fall yield approached, the brood-chamber was steadily filled with honey until, at its close, the combs were heavy with honey, to the almost entire exclusion of brood. This was the case with all colonies, blacks as well as Italians, in which the brood-chamber had been closely contracted, although no hives or frames had been reversed during the fall yield. I have about 35 colonies, which were in Heddon hives, or contracted to five Simplicity frames, which I am afraid will not winter well. They are in excellent wintering condition otherwise, but the colonies are much smaller than I should like.

Dayton, Ill., Dec. 23, 1886.

J. A. GREEN.

Friend G., I think you have hit it exactly in what you have to say about "popular crazes." Just now, sliding down hill on a toboggan seems to be the craze in many of our cities; and riding behind a fast young

horse in the daintiest-got-up cutter is not to be compared to sliding down hill and going back on foot, pulling your toboggan after you. As the latter course gives outdoor exercise to some who might not get it otherwise, I guess we had better say amen to it, and not grumble. I have been greatly rejoiced to see Caddie and Connie and cousin Mabel—yes, and Huber too, when the weather is not too cold, exercise their lungs and muscles in sliding down hill, almost from morning till night, in a way they never did before. Dress the children up warmly, and encourage them in rough and tumbles out in the snowdrifts. When our whole nation shall get a craze in that direction, we can thank God for it.—I have felt a good deal as you do, all along, and I am inclined to think Heddon agrees with you, from the fact that he has turned about and adopted wide frames and separators. I think all the difficulties, or nearly all, can be readily remedied. Have the set-screws made of galvanized iron, which may be turned out and dipped in oil occasionally, and I think you can turn them with your fingers. I was surprised when I saw old-fashioned screws on one of friend Heddon's sample hives. The very minute I saw that Heddon recommended a frame almost tight fitting in the body of the hive, I decided at once they would not be very long movable in our locality, on account of propolis. The same arrangement was exhibited at the Northern Ohio State Fair, in Cleveland, years ago, and I afterward saw some hives where the frames had been pushed in when the propolis was soft from the heat of the summer sun. They were about as securely cemented in as you could do it with melted rosin.—In regard to the foul-brood part, friend G., I should say that a bee-keeper has no business having foul brood in his apiary, and therefore need not calculate on it. If the above does hit us, no matter. —Perhaps Heddon, by a different arrangement, will be able to keep the honey out of his brood-chambers.—I think the progeny of certain queens are more disposed to fill up solid all around the brood-nest, than others are.

PRODUCING BEESWAX FOR THE MARKET, INSTEAD OF HONEY.

Can We Not do it Now, Since Honey is so Low?

SOME THOUGHTS AND SUGGESTIONS GROWING OUT OF AND PERTAINING TO THE ABOVE MATTER.

FRIEND ROOT:—This question of wax secretion is really one of the apicultural problems of the day. I have been reading all that I can find upon the subject; I have also been corresponding with some bee-keepers who have been experimenting in something the same line as I have. I have thought about it in the day time, and lain awake nights, and pondered; and it is my firm conviction that we have been losing a big thing in not utilizing the natural wax secretion that is going on more or less all through the working season. I am aware, that when wax is needed for comb-building, the wax secretion is greatly in-

creased; but at the low price at which honey is sold, is it not possible that it would be profitable to *encourage* wax secretion and natural comb-building? To what extent, when, where, how, in what manner, and under what circumstances, it would be advisable to have natural comb built instead of using fdn., will probably take some time to decide; but if we will only start out with this object in view, and *work*, we can find out. In my locality, and with *my* management, I know that the use of fdn. in the brood-nest, when hiving swarms, is unprofitable; but I do not think the matter stops *here*. I think there are still more advantages to be gained by utilizing the *natural* secretion of wax, but just how it is to be done I do not know, and I don't know but I am glad I do not, as there is now before me the *pleasure of finding out*. I have not a particle of doubt that there are times, places, and conditions, when the use of fdn. is *very* profitable; and what we need to learn is, how to use it beneficially.

I sometimes feel impelled to write an article upon this subject, but its magnitude appalls me, as there are so many things to be considered, so many ifs and ands, that I fear I could not do it justice.

Rogersville, Mich.

W. Z. HUTCHINSON.

Our friends will remember that this has been brought up at different times through our past volumes. Friends Hasty and Viallon have given us the most light on the subject, but we are still a good deal in the dark. The above letter from W. Z. Hutchinson was not intended for print, but it comes in so well with several other suggestions that I have taken the liberty of giving it just as he gave it to me, and I think he will not object.

VARIOUS MATTERS.

APIARY NEAR RAILROAD.

A CORRESPONDENT wishes to know (p. 171, 1885) if it will be a damage to an apiary, if located within ten rods of a railroad. As a rule, I should say not; yet if the bees are to be wintered in a cellar or underground cave, the jar from the trains might cause trouble. I have little experience along this line, as I live eight miles from any railroad; but a friend of mine who lived within six rods of the Auburn branch of the N. Y. C. R. R. told me that he believed very much of his loss during winter was owing to the disturbance of his bees caused by this railroad. While there one day he invited me to go into his bee-cave, or special underground repository in which he wintered his bees, about train time, to see what I thought about the matter. The repository was as nice a one as I ever saw, as the sides and bottom were of clean white sand, and kept at a uniform temperature of from 42 to 46°. If I recollect aright it was in December when I was there; and when we went into the cave all was as quiet as I ever knew a bee-cellar. No light was yet made, for he wished me to note the effect of the train on the bees, the same as it would be every time a train passed. Soon we began to feel a slight jar to the ground, and in a moment more the bees began to buzz, or show signs of being disturbed, which increased as the train neared; and as it went by, the trembling of the earth in this dark place was so great that it was any thing but

pleasant to me, and I did not wonder that the bees became so woke up that they came to the entrance of their hives and ran wildly about to see what the trouble was. He told me that this disturbance lasted them from ten to fifteen minutes after the passing of every train; while toward spring they did not get settled down between the passing of the trains. He never was successful in wintering bees in this place, and soon sold out and moved away. Since then I have thought I should prefer some other place for cellar wintering of bees besides one near a railroad.

WORKING QUALITIES OF BEES.

Another correspondent writes (p. 420, 1885) that he thinks that Italian bees work best on basswood and thistle; the blacks on raspberry and buckwheat, and wants my opinion in the matter. After the most close watching of these two varieties of bees during a period of ten years, up to three or four years ago I failed to find a single instance when, or a single plant or tree upon which, the blacks exceeded the Italians in the least as to honey-gathering, while at many times the Italians were actually making a gain while the others consumed their stores. For this reason I discarded the blacks entirely, since which, of course, I have had no opportunity to test them. To be sure I was right, I sent and got queens of the (said to be) *large brown* bees, and of the industrious gray bee; but a thorough trial of both only proved, as I expected, that each was not different from the black bee of our fathers' time. Next I tried the much-praised hybrids, produced by the famed breeder of *Apis Americana*, and found them not a whit ahead of the hybrids which I had had for years; at last, the profit made from my sales of honey from my Italians forced me to part with all other varieties of bees. I know that black bees will store more dark or buckwheat honey than the Italians; but my experience is, that, at the same time this is being done, the Italians are storing more white honey from red clover, whiteweed, and selendine, than the others get from buckwheat. When this white honey is not obtainable, then the Italians store of dark honey an equal amount with the blacks.

CRAMPING OF QUEENS.

When queens are caught by the wings they often double up and appear to have a cramp, the death of a queen having been recorded from this supposed cause (p. 532, 1885). For a long time I supposed this doubling up was caused by a real cramp; but after a little I learned what the trouble was. I caught a queen to clip her wings, when she doubled up as has been described. I thought to let her go as I had always done before when they had thus cramped, but I hesitated, as she was a shy body; and I had had several times of hunting for her before I found her. I soon concluded to clip her, even if she died, rather than hunt for her again; so I lowered my hands very close to the top of the frames and clipped off all the wings as I usually do. She lay on the top-bar of a frame, apparently lifeless, so it gave me a good opportunity to examine her closely, when I soon saw that she had one of her front feet tightly clamped in the opening from which the sting extrudes. In a moment more she began to kick about (as the bees hovered around her, so she saw she was in her own home), when the foot was loosed by the opening parting, and she crawled down among the bees unharmed. Since then I have closely watched scores of queens when thus

doubling up, only to witness the same operation. The queen struggles to get hold of something, so as to liberate herself if possible, and in these struggles curves her abdomen and partly thrusts out her sting. While in this shape one of the front feet catches hold of this apparently secure foothold, upon which the opening is closed from the sensation caused by the foot, holding the foot as in a vise, thus keeping the queen in her doubled-up condition as long as the foot is thus held. I have known queens to remain thus for several minutes, when not returned to the bees. The death reported must have resulted from the foot being stung accidentally while held in this shape. G. M. DOOLITTLE.

Borodino, N. Y., Jan. 1, 1887.

I should think it quite likely that a beecellar within six rods of the track might be objectionable, as you say; however, our bees are, the nearest of them, fifteen rods from the track, and are, of course, located out of doors; and as we have been exceedingly successful in wintering, we can not think a railroad at this distance is any detriment. There is, however, comparatively little travel on our road, and no lightning express trains, as you have on the great thoroughfares. I can imagine these would be more objectionable than the slow-running coal-trains that comprise the greater part of the business on our road.—Your experience with black bees compared with Italians is surprisingly like our own, although we have never tested the brown and gray bee, so much talked of in some localities. I have always been of the opinion, however, that they were common bees, and nothing else.—Your discovery of the cramping of queens is quite new; and until I verify it I can hardly believe it possible that the cases that have come under my observation were all caused in the way you suggest. The queens I have seen seemed absolutely dead, and doubled up exactly as if they had been stung. I have looked them over carefully, to see, if I could, any thing the matter; and when they finally straightened out and walked off, I have been tempted to think they were either frightened out of their little wits, or that they had been "playing possum." Hereafter we will all of us watch and try to verify.

FOUNDATION, VERSUS ITS NON OR LIMITED USE.

WINTERING BEES WITH AN EMPTY HIVE UNDER THE BROOD-NEST.

A COLONY that had been worked for extracted honey was found, in the early part of the winter of 1885, to have taken up winter-quarters in the upper story of the hive; and as they seemed to have plenty of honey I concluded to let them remain there. However, I carefully lifted the upper story and removed the frames from the lower story, that I might see how the bees would winter when so arranged. This was a single-walled hive with glass in the lower part, which gave an opportunity to see how matters went on. This colony came through in good condition, and kept the lead throughout the season. As the honey-season drew on, and the bees evinced a desire to build comb, the lower story was filled with frames having starters only of worker foundation. These frames

were soon filled with nice worker comb, and occupied with brood. The queen being kept busy filling the new combs with eggs, had left the upper story for the storage of honey. So energetically did this colony work under the stimulus of filling the space between the entrance and the upper combs, they were quite as far on at the first extracting as were other colonies that had been given a full set of combs to begin with.

MAKING BEES BUILD COMB BETWEEN THEIR BROOD AND THE ENTRANCE.

By this experiment I concluded that I had made two important discoveries—first, that bees are greatly stimulated and led on to the greatest degree of exertion and activity when induced to go into a "good big contract of comb-building," and that they will begin sooner and work more energetically when building comb to fill the intervening space between their brood-nest and the entrance, than to build comb above the brood-nest. Second, that when building comb beneath their brood, and with a view to extend that brood, they naturally incline to build less drone or store comb. That you may be satisfied with the desirability of this plan for securing nice all-worker combs, you would do well to test it by setting aside, the coming season, some colonies to build combs below, and others to build above their brood-nest. After the trial I think all of the fraternity would read the reports with interest.

HOW TO GET NEARLY ALL WORKER COMB WITHOUT USING FOUNDATION, ETC.

It is my opinion, that a clear gain of a full set of combs will be found, resulting from having the combs built below, the brood-nest, with much less drone-comb and a less disposition to swarm. Of course, in any case less drone comb will be built where the queen is young and prolific. As I must have a full set of combs built for extracting purposes the coming season, and must have them worker comb, I "hedged" in my bees a little last summer and fall by superseding every queen I had over one year old.

WHAT TO DO WITH DRONE COMB WHEN BUILT IN THE BROOD-CHAMBER.

While this question of how to get rid of drone-comb building is before the "house," I want to relate an experience I had summer before last. A large swarm was hived on ten L. frames, no starters used. At the end of one week the frames were pretty well filled down with comb—one-third, or nearly so, drone or store comb. This was all cut out, and, a few days later, on examining I found the frames full and but little drone combs; but what had been built was again removed. Examining a few days later, I found nothing but worker comb in the hive. The drone comb thus obtained was then cut up and waxed into sections, put into a case, and given to the swarm for completion. They were soon finished—the finest lot of 40 one-pound sections I ever saw. Here we have an illustration of how to manage independently of foundation. For any who may have more money than time to invest in the business, I say, buy all the foundation you wish. I only mention this to show that those who will may get on as well without foundation as with it.

JOHN A. BUCHANAN.

Holliday's Cove, W. Va., Dec. 27, 1886.

Friend B., you have struck upon some very important points. First, having a large empty space beneath the brood-combs

for winter, on the plans recommended by Bingham, Doolittle, Boardman, and others; second, having bees build comb between the brood and the entrance. This is an idea that was strongly advocated by Gallup and Adair, as much as 15 years ago. It was given in connection with what they called the "New Idea" hive. Third and last, cutting out drone comb from the brood-nest, and putting in surplus boxes. Mr. W. B. House made a very large crop of comb honey by this means, some years ago. He took both drone and worker comb, however, as fast as the bees built it in the brood-chamber, cut out the pieces, and put it in surplus-boxes. The greatest objection to this course would be the trouble and time.

A BETTER RECORD FOR THE ITALIANS.

AVERAGE YIELD PER COLONY, 281 LBS.; LARGEST YIELD FROM ONE COLONY, 560 LBS.

ON page 977, GLEANINGS, 1886, Mr. E. France, after giving "The Record of Two Students" for the year just closed, concludes as follows: "It seems to me I hear you say, 'They must have been a strain of pure Italians, or some other fancy breed.' Well, they were a pure race of blacks, or brown bees, as you choose to call them—those fellows that some writers say live from hand to mouth—poor despised blacks. They are not so poor a bee after all. Who has got 49 colonies of any other race that has done any better (take a whole apiary through), not pick out 49 of the best?" Well, Mr. France, I have an apiary, not of 49, but of 41 colonies, that did much better than that of your student. They were about as pure Italians, too, as are to be found in this country, several of them containing imported queens. Here is the record: In April, 1883, I took 41 colonies in rotation, without selection as to strength, from my home apiary at Nauvoo, Ill., to a small prairie village five miles east of me. The spring was cold and backward, and the whole season unusually wet. No timber was within three miles. Some fruit and a few black-locusts were the only flowers they had to work on before white clover; and although the colonies were in good average condition, with a great plenty of stores, when removed I was compelled to feed them the last week in May and the first two weeks in June, to prevent starvation, one colony being almost starved before I discovered that they were short. But such a mass of bees! I never saw the like before, nor have I seen it since. The ten large Quinby frames were almost a solid mass of brood, and the hive and surplus box were overflowing with bees. The removal seems to have stimulated them to excessive breeding. The white-clover honey-flow began about the middle of June, and lasted all through July, followed by buckwheat and heart's-ease in August, and ending with Spanish needle, wild artichoke, goldenrod, etc., September 20. The total yield from the 41 colonies was 11,550 lbs. of extracted honey, or an average of 281 lbs. per colony. Greatest yield of any one colony, 560 lbs. I had no swarms—at least, none were seen. I followed the tiering-up plan, always being watchful that each colony had plenty of room for storing honey.

I began the season with 63 surplus boxes, with

frames full of empty comb. I ended the season with 95. I used full sheets of foundation built out in frames. My plan was, as soon as the first box was about half full, to raise it up and put an empty one under it. They continued to work mainly in the upper box; and when the combs were about three-fourths sealed we extracted them and placed the box with the extracted combs below again, next to the brood-chamber. During the first 24 days of July, each 14 colonies gave us one barrel of honey (550 lbs. net) every eight days. This apiary is located on the premises of Mr. William Thornbur, Powelton, Hancock Co., Ill. Mr. Thornbur received one-fifth of the honey as his share, for location, etc.

I have had large yields from some of my other apiaries, but none have ever equaled this one. I have had considerable experience with the Italians, the black (or brown), and the Cyprian bees, and I can truly say that I would not have either of the latter breeds as a gift, for the production of extracted honey, conditioned that I must not Italianize them, although I much prefer the Cyprians to the blacks. I find but one fault with the Cyprians—their unconquerable crossness. Were it not for this I should prefer them to the Italians, as I find the former equal to the latter in every other respect, and much more prolific—one of the best qualities of a profitable race of bees.

EMIL J. BAXTER.

Nauvoo, Ill.

Friend B., we are very much obliged to you for coming forward in defense of the Italians. Other circumstances, however, may have had something to do with your enormous product. Five hundred and sixty pounds from one colony, in one season, is one of the greatest reports ever put on record. The locality must be excellent, and the season was probably very favorable.

DOOLITTLE'S QUEEN-CELL PROTECTOR.

ALSO SOMETHING FROM AWAY OFF IN SOUTH AFRICA.

SOME months ago I wrote you a few items about bees and honey in this vicinity, and my own experience in changing from vicious hybrids to Italians. Before the work was finished, Mr. G. M. Doolittle gave us the description of his wire-cloth cell-protector, and that "Yankee notion" was worth more to me than the cost of your journal, for it settled three colonies that had previously destroyed queens and cells most provokingly. So much time was lost by rearing and introducing queens, when the honey-flow was best, that my increase was only from 13 to 20 colonies, and my honey-crop only twenty-seven gallons; but it seems that, in at least one part of the world, that passes for fabulous success. I reported it to a lady who was once a member of my household, but has been some years a missionary in Cape Colony. You may be interested in an extract from a reply received a few days ago:

"What a nice lot of honey to get from 13 stands! and that reminds me that we are reveling in honey just now. We had fine rains this spring, so the bees found plenty to work on, and the honey is very delicious. The honey-plant is evidently a variety of what we call candy-tuft. It grows in great profusion in the fields, springing up after every slight shower. The honey is whiter than our white-clover,

though I do not think it so fine in flavor. The bees are all native stock, and very vicious, I hear.

"The honey is taken in the good old way, killing two-thirds of the bees by smoking the 'gum,' and so stupefying the others that they hardly recover. I think nearly all to whom I have described our way of handling bees and honey have looked upon it as a *big scam*. I mentioned to some of my teachers last night the amount of honey you had taken, and described the operation of the extractor; but they seemed all to think it just an American yarn. If I had told them you had met a ghost in some of your wanderings they would have believed it. I rather think we shall have something to talk about when we meet."

It will reinforce this lady's reputation for veracity, and may possibly introduce your wares to a new and needy region, if you will send a copy of your catalogue, and a specimen number of GLEANINGS, to Miss T. M. Campbell, Rockland Seminary, Cradock, Cape Colony, British South Africa. I send you stamps enough to pay the postage, if the parcel does not exceed four ounces. DAVID STRANG.

Lincoln, Tenn., Dec. 30, 1886.

My good friend S., when you want us to send price lists or sample copies of GLEANINGS anywhere on the face of the earth, do not, we beg of you, take the trouble to send us stamps. We are just watching for chances to get GLEANINGS away off into the remotest corners of the earth, and it does not make any difference how many stamps it takes to get it there. We are very much pleased to get the good news from your friend, and we take the liberty of sending her GLEANINGS for a year; for, be it known to you and all other friends of the missionary work, that it has for years been our established custom to send GLEANINGS free of charge to any or all missionaries on the face of the earth, so long as they care to read it; so, give us the names of those among your friends who are laboring in missionary fields. We want modern bee culture taught wherever civilization extends. —In regard to the queen-cell protector, some time ago friend Doolittle mailed us a sample, and told us we were at liberty to make and sell as many as we pleased. The price will be 3 cents each; 15 cents for 10, or \$1.00 per 100. If wanted by mail, add 3 cents for 10, or 20 cents per 100 for postage. And in order to start on the right basis, I think we will place \$5.00 to friend Doolittle's credit for what he has done toward giving them to the public.

BEE LEGISLATION, AGAIN.

MRS. HARRISON'S VIEWS.

MR. EDITOR:—I am very sorry to see such a covetous and selfish spirit manifested among bee-keepers as to favor legislation that would deprive any one, so disposed, of the pleasure of keeping bees. They must be looking at the question from their own standpoint, and not from the other side. I well remember the time when I aspired to be a bee-keeper. There were two persons engaged in the business quite extensively, within the city limits, at that time. Both of them kindly assisted me in

every way. One came and divided my two colonies the first season, charging nothing for his services; he lent me books, and gave me sound advice. Honey at that time sold here for 30 and 35 cents per pound. By the time I was firmly established in the business, they were out of it. One of them was a doctor, and he couldn't buy the privilege of doctoring the city, and many frisky practitioners came here and boldly hung out their signs, so he folded his tent like an Arab, and staid away. His bees were scattered around the city, and soon they had emigrated west. The other man had a large lumber business, which increased to such an extent that his bees were neglected, and soon died out. At the present time there is no one person who has as many bees here as we have.

A very pleasant old German, whose beaming face reminds me of friend Muth, comes here occasionally to talk about bees. I asked him lately if he liked bees. His countenance lighted up as he replied, "Oh, yes; I like 'em." This man is too feeble to do heavy farm work; has abundant means, and keeps a few bees for the love of it.

An old lady of this city, past her threescore and ten, has a little apiary of six or eight colonies, and takes a great deal of pleasure in caring for them. An old man past fourscore has 25 or 30 colonies. Now, I can claim priority of location over these old people, but I don't want to take the cup of pleasure from their trembling hands. Brother Root, you would like to purchase the privilege of keeping all the bees in a certain district, and also wouldn't you like to sell all the bee-keepers' supplies in the United States? Thomas H. Newman could have done a big business in Chicago, in selling supplies, if it hadn't been for your mill in Ohio, and the cheap labor obtained there. Was there anybody raising peas, lettuce, beets, and cabbages, in Medina, before you? or selling kites or jack-knives? Would not your business be better if you could do all the selling in Medina or the United States?

I attended a bee-convention at Monmouth, Ill., where one of the members complained bitterly because some others, living four or five miles from town, brought their honey there, and injured his market. He said, "They might take it somewhere else." This same man brought honey to Peoria, and injured my market. MRS. L. HARRISON.
Peoria, Ill.

Mrs. H., I fear you are a little uncharitable in your opening remarks, although I do feel a good deal as you do about the matter as you put it. I think, however, that all of us who know Dr. C. C. Miller know he is not looking at the matter from any selfish standpoint, but, on the contrary, is constantly considering the greatest good to the greatest number. You are mistaken, my friend—I do not want the privilege of selling all the bee-supplies in the United States. A great part of our business is fitting out supply-dealers with machinery and appliances, and we always invite them to look over our works, take dimensions of every thing, and we are glad to have them copy our plans. The saving of freight alone in making hives and section boxes is a very great argument in favor of having supply-dealers located at central points all over our country. We may be thoughtless in some of our remarks and suggestions, my

good friend, but I am sure we are not, many of us, so narrow-minded as the man who thought his neighbors might take *their* honey *somewhere else*.

THE BEE-KEEPERS' UNION.

FRIEND HEDDON'S IDEAS UPON THE SAME.

AFTER reading our highly respected sister Harrison's talk about the Bee-Keepers' Union, and your foot-notes on page 11, I, being the founder of the organization, or, perhaps, I might better say, originator of the same, and am now serving the second year as president of the same, and to-day, as ever, believe with Prof. Cook and many other intelligent and honest bee-keepers, that, if properly supported and managed, it will prove a great success and blessing, it may not displease you by my suggesting a few thoughts contrary to Mrs. Harrison's article. I believe that neither Mrs. Harrison nor yourself have looked at this question from the right standpoint. Ask yourself, first, is bee-keeping, in the nature of things, a legitimate and useful business? Certainly you will say, "Yes." Now, admitting that we may follow it as a business, are we not entitled to the same rights, *vs.* the rights of others, that other lines of legitimate business are entitled to? A railroad cuts through a farm because it can not run under it nor afford to go around it. The odor of horse-stables is allowed to waft out upon the breeze, because it is impracticably expensive to absorb it in the barn, and horse-keeping is a legitimate business. When bees are kept so close to land not owned by the keeper that persons traversing that land are liable to be stung by the bees in defense of their hives, I hold that keeper responsible, because he can prosecute the business successfully without keeping such bees in such manner and in such places that any one need be stung by them in defense of their homes, unless the person stung is trespassing upon the land of the bee-keeper, in which case said person will be held by law and reason to abide by the consequences. I have surveyed the ground many times, and firmly believe that any rights less than those mapped out above will reduce our business to an uncertain "child's play," alike damaging to producers and consumers, and tending to keep us in constant litigation. For 13 years I kept from 16 to 180 colonies within 20 feet of our house, and the same distance from a neighbor's house, in the most thickly settled portion of the town, and in all that time no person, outside of the yard, was stung by one of my bees in defense of their homes. A small boy was stung in the foot by stepping on a bee at work while on white clover. This took place about 40 rods from the apiary. His father, a Jewish clothier, asked me if I ought not to remove the bees from the town. I told him that I might move them when he would move from his barn a stock of rat, mink, and skunk skins which he kept constantly in stock, and which were as constantly wafting their odor into our doors and windows, which were about 12 rods distant. He replied, "Oh! that's all right; I didn't expect you to remove your bees unless you *wanted* to."

You see, the reason why we are overreached in our natural rights is because the people attach no more dignity or importance to honey-producing

now than when the product was produced in fence-corners in "skeps," and was a dripping mixture of bee-bread and honey.

In my first letter upon the subject of our Union, anticipating its possible tendency to create trouble, I guarded against it by particularizing that any member asking aid of the Union must be able to show that no trouble was brewing at the time he became a member, it being the duty of directors to look into this matter in every case when asking the Union for aid. I believe this important feature has been omitted from the by-laws. With this added, and the already healthy arrangement that the Union shall not bear *all* of the expense (and, I should like to add, except where the defendant is poor), but about two-thirds of it, I think Mr. Newman tells us, I see no danger from any of the bad results depicted by Mrs. Harrison. The Union proposes to defend nothing but evident rights; and its board of directors, after carefully examining the law and the facts, will surely be able judges and honest exponents of the merits of the case. I feel that you, friend Root, are not saying as much in favor of our interests as simple justice warrants.

FRIEND MILLER'S LEGISLATION.

I have been opposing Dr. Miller's proposed "legislation for bee-keepers," through the *A. B. J.*, and I want to say that I agree with him fully in nearly every point he makes on page 17 of your last issue, except that I believe it can and will be brought about by the law of "the survival of the fittest," and in no other way. I know that the results of this natural law are sometimes not in harmony with our highest conception of right; but in this case I think they are, and that by it, is the best and only possible way to bring about the ends desired by friend Miller. Any way, he is to be congratulated for the candid, clear, and concise style in which he has vanquished his opponents. To my mind, he never wrote a better article for our journals. We have held convention after convention, and written essay after essay devoted exclusively to "getting on" in the *production* of honey, and now we begin to feel how poverty-stricken we are, regarding our knowledge and works which enable us to add financial success to that of successful producing. I trust that, before next swarming-time—in this latitude—we may hold a convention devoted exclusively to a few very important subjects, closely relating to our success, but not in the line of production. There is much else to look after.

THE HUTCHINSON PAMPHLET.

I have seen yours and friend Bass' call to friend Hutchinson to give us a pamphlet on the subject of the non-use of *Idn.* in brood-chambers, which is as important as it is original. Our hearty thanks and profoundest honors are due to friend H. for his work in this direction, which has been as diligent and successful as novel. Who among us can write a terser, more vigorous, or clearer treatise on this or any other apicultural subject, than friend H.? The addition of other subjects, with its consequent enlargement of the pamphlet, I am sure would be prized by us all. We have none too many books devoted to our chosen pursuit, particularly from such men as W. Z. H., who possesses in so high a degree successful, practical knowledge, and the ability to clearly impart it to others through the medium of the press. I am confident I should profit by it.

Dowagiac, Mich.

JAMES HEDDON.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Dec. 15.

CHAPTER XXXIII.

The pastures are clothed with flocks; the valleys also are covered over with corn; they shout for joy, they also sing.—PSALM 65: 13.

What a glorious promise, friends, is the little verse above! and how well it comes in with our talks through the previous chapters! But if we would receive these promises we must set about it and do our part, even though it be the middle of January, and in the depth of winter. The question is sometimes asked, what we can do in the winter time. A young friend is just now visiting me, who is greatly taken up with the idea of earning a livelihood for himself, wife, and a baby fifteen months old, on his farm of twelve and a half acres. He has just taken home with him a lot of books and papers to read; but from the talk I have had with him, I am afraid he is reading too much and working too little. I don't believe it is best for a farmer or gardener to spend much time in reading during daylight, in the winter time. As soon as it is light enough to see outdoors, we ought to be hard at work with brain and muscle at something, and do our reading before daylight in the morning or during the long winter evenings; and one of the things to be done is to look after the manure in the winter time; and this brings me to the subject of

PREPARING AND APPLYING MANURE.

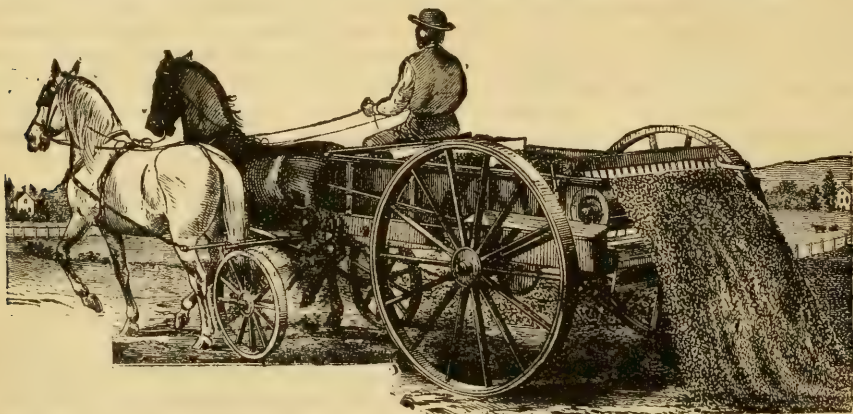
In Chapter XIX. we talked about different methods of procuring or making manure at home on the farm, or on our ten-acre farm, if you choose. Let us now consider the matter of getting our manure in shape to apply it to the ground, and of applying it. If your manure is piled up in a heap it will get hot, and burn itself up; and this must, under no circumstances, be allowed. It wants forking over and stirring up; in fact, it wants *breaking* up. In all of our books on gardening and farming, we hear this matter recommended over and over again. In the excellent little work entitled, "Gardening for Young and Old," by Joseph Harris (author of "Walks and Talks on the Farm," etc.), he goes over the matter again and again in his directions for producing almost every crop, and says that the manure must be pounded up and broken up before it is mixed in with the soil. I was especially struck with his directions for raising a nice crop of celery. First, we are to roll and plow and harrow, and roll and plow and harrow again, until the ground is light and

fine. Then you plow furrows, using the double-mold board plow, or, if you have not one, go down and back with a common plow, and then the manure is spread in these furrows. For celery, it needs to be old, thoroughly rotted manure. Then he says, "Spread it evenly, knock it to pieces with a hoe or potato-hook, mixing more or less soil with it, and get it at any rate well *broken to pieces*." We have tried the plan, and it certainly gives good results; but the labor of breaking the manure to pieces is rather expensive. As soon as we commenced at it I began to wonder if there was not some better way. I have suggested, in some former chapter, giving it to the pigs, and inducing them to root it over and break it up.

A few days ago I struck upon another plan for fining manure. We brought in quite a quantity and put it under the benches of the greenhouse, preparatory to filling our boxes for transplanting celery, cabbage-plants, etc. The manure was good, but it was in lumps and chunks; and as it was rather damp it was quite a task to break it up with rakes and sieves. Our brood of chickens that were raised to catch green flies in the greenhouse got too big for the purpose; and as they showed great dexterity in scratching whenever they were permitted to get on the lettuce-beds, I took the hint and confined them with wire-cloth poultry-netting under the benches. A little wheat scattered among it did the business. A hen and chickens can break up dirt or manure, probably better than any machine ever invented. As they oftentimes "work for nothing and board themselves," why not turn their wonderful talents in that direction into some useful channel? Our poultry-journals have had a good deal to say, and keep talking constantly to us, about providing employment for the fowls in winter. Gather forest-leaves, or provide cut straw; then scatter your grain among this and let them scratch it out. Now, it would cost me money to gather forest-leaves at this time of the year, and it would cost me money, also, to provide cut straw; but our manure-heap under the shed (pictured in Chapter XXXI.) is right handy to the poultry. They had been digging it over some, and I took down a rake, provided myself with corn and wheat-screenings, and

very soon had the grain scattered through the coarse manure. Why, it just made a "picnic" among the Brahmas that had been standing idle, first on one foot and then on the other; and this morning I heard a chorus of cackles that pretty surely indicates that eggs are not far in the future, even if it is only the first week in January. Now, friends, instead of being annoyed by the scratching of the poultry, can we not turn this scratching into a useful channel, so that the more scratching they do the more we feel happy? Terry tried to arrange his work, you remember, so that he felt happy when it rained on his potatoes; but if it did not rain, he felt happy because it gave him a chance to get in his clover. There may be other domestic animals that can be employed to break up, fine, turn over, and prevent from heating, our accumulations of manure-heaps, but I have not discovered them. While on the subject, I might add, that, if the manure from the poultry-house is placed on the manure-heap, and worked over in the way I have suggested, I think it will be the easiest method of applying it to our ground, and I think it will also do the most good. Now, although you may keep a very large flock of fowls, it is hardly probable that they can work *all* your manure up that is to be used on your grounds. Is there any thing in the way of machinery to do this work? In my former chapters I have several times alluded to the manure-spreader, but I have only now got ready to consider the machine fully. We give a picture of the latest improvements in this line, so far as I know, below.

up the manure by revolving so rapidly that it breaks and tears manure of any description, as the machine moves along. Instead of having a man to throw it off in forksful, without breaking it up, the machine throws it off, scatters it more evenly than could possibly be done by hand, and at the same time tears it to pieces and breaks it up fine, in a way that no sort of handwork could possibly do. The great objection to these machines has been their cost, which used to be from \$125 to \$150. They are now, however, reduced to about an even hundred, and that for the very best machines made, so far as I know. Notwithstanding the large price, the manufacturers who produce the machine shown above had, in 1884, sold nearly 1000 machines in different parts of the United States. They furnish a list of parties using them, so those who want to buy can ordinarily see the machines at work, without going a very great distance from home. Of course, it would not pay one to invest in such a machine unless he has a good many loads of manure to spread. Let us figure it this way: The interest on the money would ordinarily be \$6.00 a year. If the machine is carefully housed and properly used, it would probably last fifteen or twenty years, so you might say that the wear and tear of the machine would be perhaps as much more as the interest; therefore, unless the machine can be made to be worth ten or fifteen dollars a year, it would hardly pay to buy one. In view, however, of the fact that it puts all the manure on the ground in so much better shape than can be done without it, as well as in saving



MANURE-SPREADER AT WORK, BROADCASTING.

You will notice the cylinder, with spikes in its circumference, something like the cylinder of a thrashing-machine. This tears

of time, it might be best to make the purchase, even if the time saved does not amount to more than ten or twelve dollars

a year. I believe it takes about 20 or 30 minutes for a good stout man to scatter a load of manure. A spreader will do it as quick as a team can go from one end of the lot to the other. In fact, we have our heaps of manure at each end of the lot, so that we throw a load on at one end, drive across, load up again, go back, and so on. Our best authorities on market-gardening recommend from fifty to one hundred loads of manure per acre, every season; suppose, however, we say 25. A man with 10 acres of land to be manured each year would have 250 loads to spread. If the labor saved by the use of the spreader amounts to only 10 cts. a load, we should have \$25.00, and I think it would pay well, under the above circumstances, to purchase a spreader. In view, however, of the *better results* to be obtained, we might say it would pay with only

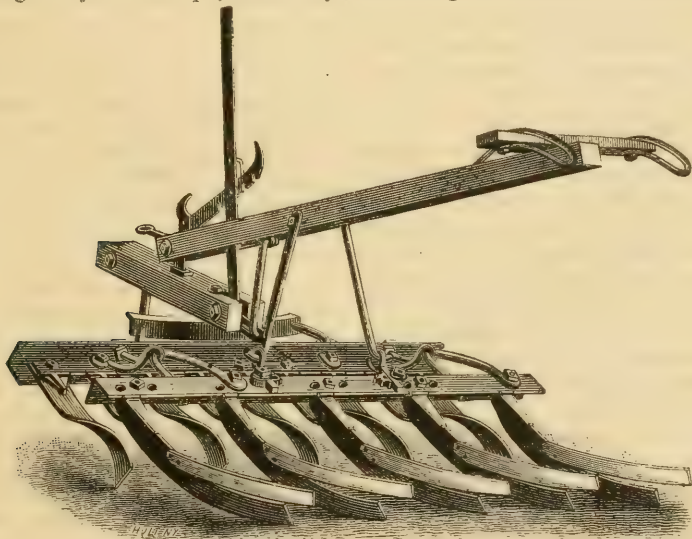
joining farmers had from 12 to 15. There is much manure hauled out and put in piles that is a waste.

C. H. McCULLOUGH.

Troy, Ohio, Nov. 23, 1886.

The point made in the above is, I think, an excellent one. I know that about all the leading authorities on agriculture are now recommending that manure be not put on the ground until either just before the crop is put in, or even *after* the seed is put in, as above; and some advise that half of the manure be put on at the time the crop is put in the ground, and the other half to be put between the rows when the crop is partly grown. Peter Henderson emphatically advises, in his recent writings, that the manure be finely spread on the top of the ground, after the ground is all properly fitted, instead of being plowed under.

The best machine for working the manure into the ground after it is spread by the ma-



THE ACME CULTIVATOR.

five acres to be manured every season. In regard to this latter point, I submit a letter from one of our Ohio men, that the manufacturers of the manure-spreader sent me some time ago:

Messrs. Kemp & Burper Mfg. Co., Syracuse, N. Y.:—

I thought I would send you a line in regard to my manure-spreader. I have been using it about three years, hauling out from 200 to 300 loads per year, and have had no occasion for repairs of our own breaking. I have been hauling pure cow-dung to-day that we could not have spread off a wagon with forks. I would not take \$200 for mine and be without it. I can unload quicker than four men can load it. When I loan it out I charge \$1.00 per day for it. A word in regard to its use on my wheat ground. I sow my wheat, then go over it with the spreader, putting on about 15 loads to the acre. This year I had 27 bushels to the acre, while the ad-

nure-spreader, is the Acme harrow, described and illustrated in Chapter XXVI. Where the manure is spread over the ground after the crop is partly up, of course the full-sized Acme can not be used; but the manufacturers have lately brought out what they call the Acme cultivator, figured above.

This works the manure in beautifully, and is the best cultivator I have got hold of for breaking the crust on the ground, working it up fine, and leaving the ground level after it is passed over. We have used it during the past season, with the greatest satisfaction, between the rows of celery, until the plants were large enough to need a little earthing-up. A neighbor has also used it for cultivating corn; and although

he has a two-horse cultivator, he used this, saying it did the best work in the cornfield of any thing they ever had a horse hitched to.

I have said so much in favor of the manure-spreader, I will now mention its disadvantages, so far as I can, after having used it part of one season and the whole of another. First, it needs a good stout team to work it, especially if you have manure in solid hard chunks, or cow-manure, as mentioned above; and even with a good stout team it is not advisable to put on as heavy a load as the same team would ordinarily draw on a wagon. There may be some difference of opinion in regard to this matter, but we have tested it pretty thoroughly. We buy our manure all over the town, and buy it at so much a load; therefore it is desirable to get about as much as the horses can draw conveniently. Of course, we have a good team; but if we put on as much as the horses can draw, it is a pretty severe strain on the machinery. We at first tried tramping the manure down, but this will not answer, for two reasons: It gets too much weight on the machinery when the manure is heavy, and the strain is much more severe on the cylinder that picks it up. On a recent visit through adjoining counties I noticed that those using manure-spreaders drew their manure to the fields in wagons, and threw it down in heaps at each end of the field, as I have described. The machine was then set so as to spread a load in going once across.* This necessitates, of course, pitching the manure on to the ground, and then from the ground on to the spreader. I remonstrated at this, calling it a waste of time; but they told me I would find it again in the end, and our experience has proved them to be correct. To have the manure spread nicely and rapidly, it must not be packed in the spreader at all. Let it lie just as lightly as you can throw it in; and although you can work it when piled above the sides of the box, especially when the manure is very light, as a rule the stopping necessitated by so doing to run the box forward and pitch the manure back on to the empty space takes more time than to throw in just what will spread without stopping. Better follow the printed directions the manufacturers send out with the machines. We have had some repairs to pay for in consequence of trying methods of our own. Our friend in the letter above speaks of loaning

the machine to neighbors. It depends upon who the neighbors are. On one occasion a neighbor set his hired man at work with it, and it was run without oil until two of the wheels were cut so as to be worthless. It seems to me the better way would be to have the man, who is accustomed to work with the machine, go with it, for it is necessarily, in some respects, a rather complicated piece of machinery; and, as friend Terry says, it must be housed or it will prove to be an expensive piece of machinery.

SPREADING ASHES, LIME, PLASTER, SAWDUST, ETC., WITH A MANURE-SPREADER.

I believe it is generally agreed, that ashes are a benefit on almost any soil; but lime and plaster may be needed only in certain localities; but as they are used quite extensively in some places, I presume there is no question as to their utility. When I was a boy, riding a horse for cultivating corn, even to my boyish eyes there was a plain difference in the corn that had received a table-spoonful of plaster scattered on the hill, from that which had received none, and it was put on certain rows and not on others, so there could be no mistake about it. This was on sandy soil, however. I have never seen this tried on clay land. In regard to sawdust, there seems to be a great difference of opinion. I presume, however, the *kind* of sawdust has very much to do with it. Sawdust from hard wood, such as is found in many of our country sawmills, is, without doubt, valuable when it is old and well rotted. We frequently get such sawdust in our vicinity as has been so long in the ice-house that it needs replacing. Two years ago we were offered a lot of this kind for hauling it away. We put it around some of our strawberries for mulching. The plants thus mulched made a much better growth, and made larger fruit in great abundance; but as the sawdust was put around the plants by hand, the labor of putting it on cost more than the benefit accruing was worth—unless, indeed, the benefit shall continue for a number of years, which is not unlikely. When applied, the vines were covered with green fruit, and it was therefore necessary to hold up the fruit-stems and put the sawdust up under the foliage. The labor cost me about \$2.00 for covering only a few rods. Now, had this been done with a manure-spreader at the proper season, the whole would not have cost over 50 cents. It is well to look out about going into any speculation that is going to take such an amount of expensive handwork as the above. I did it, principally

*Where two teams are accessible, one may draw the manure to the lot, and pitch it directly from the wagon to the spreader, some extra piles being placed in advance on the ground, to keep the spreader going until the team gets back.

to satisfy myself as to the benefit of old rotten sawdust. On our stiff clay soils, this old sawdust seems to have a very beneficial effect; but I presume swamp muck would answer just as well, and may be better, for both of them are decayed vegetable matter. I have been under the impression that sawdust is particularly beneficial to raspberries and strawberries. Who has not noticed the exceedingly fine growth and fine fruit of the raspberry and strawberry, when growing near decayed stumps, or old rotten logs? Now, with the manure-spreader we can put on just as big a load of sawdust as we have a mind to, and the machine will spread it over the ground most beautifully; throwing it down between the foliage, and breaking up fine every lump there may be in it.* If your strawberries are put in rows the right distance apart, the manure-spreader can be run through them at almost any season of the year, to spread sawdust, muck, ashes, or even stable-manure; and if stable-manure can be thus spread among the plants, just before a good heavy shower, it seems to do more good than any other way in which I have applied it. The machine can be set so as to spread at three different rates of speed; and where you wish to put only a very thin sprinkling of lime, ashes, or plaster, over your ground, the quantity you have may be spread over a still larger area by having the box of the manure-spreader only half full or less. Let any one take a load of ashes, and try to spread it evenly by hand over a piece of ground, and then see the manure-spreader do it, and he will be satisfied of the merits of the machine.

Perhaps some of the friends may think it a little strange that I should say so much in praise of so expensive a piece of machinery for the simple purpose of spreading manure, and nothing else, in a book that is written purposely to tell those out of employment what to do. To which I reply, that people who own property are very often in want of something to do, as well as those who have nothing in this world. If I can suggest to a farmer or gardener a way of finding work on his own premises, instead of besieging our mills and factories for employment, I think I am doing him a service; and in no way that I know of can we succeed in mak-

ing a man so permanently happy and satisfied, as by encouraging or inducing him to find employment on his own premises. The enjoyment resulting from working the ground is in having good crops; and without plenty of good manure, properly applied to the soil, there can be no satisfactory returns. Some years ago the matter of getting honey from the gooseberry and currant was discussed in one of our bee-journals. One brother mentioned that the only time he ever saw bees gather honey and build comb in real earnest from gooseberry and currant blossoms was when he gave his whole currant-patch a tremendous manuring. His wife had been teasing for a lot of nice currants, and, to please her, he just covered the whole ground with manure. The bushes, of course, made a correspondingly luxuriant growth, and the year after they not only had currants by the bushel, but they had finer currants than any one ever saw or heard of before around there. Now, it is so with almost all kinds of fruit. It is not, however, the amount of manure which is put on, but it is the way it is applied. If you use your eyes carefully you can see how it is that plants take the manure and work it into luxuriant growth. The manure needs to be applied in such a way that, after a warm summer shower, the dark-colored liquid that comes from the manure shall go directly to the roots of the plants. Now, many of the roots are much nearer the surface of the ground than most people imagine. The roots of the strawberry and celery are close to the surface of the ground. Why, we know, without telling, that this dark-colored manure-water, seen on the surface of the ground around the plants after a heavy shower, will surely bring the rich dark-green leaves, pushing up and bursting forth so rapidly that they almost seem to move. The finest growth of celery I ever saw in my life was on a little piece of ground close to a line fence between myself and a neighbor. His manure was on higher ground than the celery plants, and after a heavy rain the water ran down from the manure-heap all over my plants in such a way as to leave inky puddles for several rods. The celery was the last put out of the season, and it consisted of the remnants of a bed which I had not intended to make any use of. Before I knew it these plants had shot up so that they fell over and lay sprawling on the surface of the ground. We went at it and earthed them up in the most approved manner; but in a week they were sprawling around again. We banked

* If the sawdust is spread in the spring or fall, the strawberries will shoot right up through it, and it wouldn't do any hurt if the foliage and crowns were covered slightly, say half an inch or less; if, however, it is put on after growth has started in the spring, or while the plants are growing, the sawdust should be shaken off by gathering up the leaves and lifting them up to the light.

them as high as we could, and then set boards on top of the ridge, and banked them a foot higher. The celery was still growing when frost came, and the quality is so crisp that every bit of the plants is edible—there is no hard stalk about it. They are so crisp that, unless great care is exercised in handling it, it snaps up like pipe-stems. Now, then, to raise almost any kind of a plant, we want the ground underdrained and then worked up mellow and fine. Now work into the surface of this mellow ground a good lot of fine manure, put on just as the manure-spreader does it; then sow your seeds or set out your plants, and put on another thin covering of manure. If there should be a dry time after this last coat of manure is spread over the surface, there may be some of the manure lost by drying up—at least, some farmers think there is, but I do not feel sure of it. When a shower does come so as to wet the surface of the ground, there is manure enough to make the rain water look dark-colored; and this dark-colored water around the seeds and roots of the plants is what brings the crop. Manure plowed under may make a crop, it is true; but my opinion is, that it takes more, and does not act so quickly, as the plan given. A very little manure will color or darken a very large quantity of rain water. While I was attending the Ohio State Fair, one of my men discovered that a manure-heap was heating. He therefore turned the hose from the stables, near by, on the heap, and left it while he did something else. He let the water run rather longer than he intended, I presume. On my arrival home, the first thing I did was to take a look over the grounds. Imagine my surprise to see the water of the creek darkened as if somebody had been pouring coffee into it. I followed the coffee-colored streak at one side of the stream until it came to the outlet of an underdrain. Sure enough, the dark-colored liquid was slowly trickling from the tiles. I followed the drain until I came to the manure-heap, and, digging down into it, I saw that it was wet. I hunted up my man, but he insisted that

there could not have been water enough put on the heap to make any great waste. Now, very likely one load of *good* manure would color a stream of water for a mile; but my experience indicates that, whenever the water is colored so as to be perceptible to the eye, it will make plants grow. The question has often been asked, if the system of underdraining commonly in vogue does not in this way sometimes carry off the strength of the manure. I have watched the matter closely; and although I have seen it do it to some extent, after very heavy rains, I believe the loss is very small where the underdraining and spreading of the manure was done as it should be. If the underdrains are down fully three feet in depth, and your ground is worked up fine and soft before the manure is spread on the surface, this fine soft ground filters every thing valuable from the water before it reaches the underdrains. If, however, your manure is plowed under, so as to lie on the bottom of a hard furrow, and your underdrains are filled with hard lumps, of course the first rain carries the strength of the manure off to the roadside or to the outlet of your underdrain. This should be carefully guarded against; and the Acme harrow, such as I have described, and manure-spreader, are the things to do it.

In regard to the expense of these machines, you can test the matter for yourself. Make a bed in the garden, with a spading-fork and rake. Put on the manure with the wheelbarrow, and rake it in by hand. Measure the area you have worked, and see how much it costs per acre to do it. Now fit an acre with modern tools, and figure again the cost of team, interest on money invested in tools, and see which is the cheapest. I do not mean to discourage working with fork and rake; for small patches for early vegetables must oftentimes be got ready in this way; and the extra price received for the crop will pay for so doing. But just as soon as circumstances will permit, we should let horse-power take the place of hand-power—not only in getting the ground ready, but in spreading and working the manure.

CHAPTER XXXIV.

Whosoever shall exalt himself shall be abased; and he that shall humble himself shall be exalted.—
MATT. 23: 12.

Thus far in our book our talk has been principally about "What to Do," and but little has been said about the latter part of the title—"How to be Happy," etc. I think our happiness, to a great extent, depends

upon our surroundings. We are also happy when our plans succeed. Most of us are planning and working with busy brain. Even during the night time we lay out our work and contrive ways and means to ac-

comply with certain results. If, when we come to put this in practice, and the result equals or exceeds our expectations, we, as a rule, feel happy over it. I have seen a great many young people made unhappy by putting their expectations too high, and I have been through a good deal of this experience myself. I have always been in the habit of working more or less with tools. But one sad thing about my work, and one source of great unhappiness, has been that I planned too much in rainbow colors. Especially was this the case when I was a boy. I would decide to build some implement or some piece of furniture; and as I was short of means I concluded to do the work myself. When the article was finished it almost invariably took more time and money than I had figured on, and, with few exceptions, it did not work as well, nor look as well, as I had pictured it in my imagination. A good many times it had to be abandoned, and it was often laid aside, or allowed to stay where I last used it, an eyesore and a cause of unhappiness every time my eye rested upon it. I remember one day, when father and I were planting corn. I had seen a hand corn-planter, and I told him I thought I could make one. He objected, on the ground that my machines didn't work, and that I would be wasting nails and lumber. I told him, however, that if it did not work I would pay for the lumber, and I would draw the nails all out and put them back in their places. Under these conditions he consented. It did not work, and, with a sad heart, I pulled it to pieces, put the nails away, and cleared every thing up out of sight, as if no corn-planter had ever been made. It was a useful lesson to me. The next time I wanted to indulge my inventive faculties I remembered the corn-planter, and was saved some unhappiness by not going into it. About this time I began to discover I was not a good mechanic—at least, that I was not a good carpenter and joiner. The principal reason was, I never took time to do my work nicely, and this oftentimes occasioned failure. Besides, where a machine succeeded it looked so unsightly that I was ashamed to have it seen. I concluded to have my line of work, and work at it; and when I wanted to have carpenter work or blacksmith work done, get a carpenter or blacksmith to do it. I find the same disposition among many of the young friends who are at work here. A young man thought he could make a corn-marker; his employer told him he could not—he had not had the experience. But the boy

had quite an opinion of his mechanical abilities, and so he went to work without permission. It took him three times as long as it would have taken an experienced man, and it kept giving out in one place and then another until it was quite a source of unhappiness all round. The young man who has charge of our greenhouse has become quite skillful in making seeds and plants grow, but he makes terribly poor work when he attempts to put up shelves or benches. I have had hard work to convince him that he is not a good carpenter; and, furthermore, that it would not pay him to learn to do good carpenter work. I told him I was quite satisfied that he could, by serving an apprenticeship, learn to do nice carpenter work, and do it quickly; but as he had chosen to work with seeds and plants, he could earn much more money by sticking to his business than to try to put up shelves and benches. One of his fellow-workmen, who receives the same pay he does, would do the work nicely and quickly, without any showing or educating. Now, although I most heartily advise having a shop and some carpenter tools on every farm, or around every home, I think it quite important to beware of undertaking work you can not do profitably. If a farmer or gardener has spare time during the winter, or during evenings, he may practice using carpenter tools; but when he has something else to do in his own line of work, for which he can earn wages enough to pay a carpenter or blacksmith, I would say, "By all means do it."

I have now given you some sources of unhappiness, the moral to which would be this: If you want to be happy, and enjoy your work, be careful about putting your expectations too high. If you have attempted a good many things, and failed, let these failures teach you a lesson; and the lesson is, that you do not *overrate* your own *abilities*. I have now in mind a very good person, whose life has almost been made a failure because he constantly insists that he is capable of directing others how to do work; but the truth is, he has never first proved his ability, by making a success in small things. The fact that his life has been a series of failures does not seem to have taught him humility at all. In contrast with his disposition I remember a young man who asked me for work; and when the subject of wages came up he said, "Mr. Root, give me exactly what *you* think I am worth, and I shall be happy and satisfied." He is now receiving a thousand dollars a year. I do not mean to say

that this plan will answer under all circumstances; but in this case it has always kept a very pleasant feeling between himself and myself. Instead of complaining that he does not get what he deserves, or that he does not get credit for all he has done, he is constantly striving to see how good a record, or showing, he can make each year, and that record, or showing, pleads for him. The action takes the place of words. He has never said, "Mr. Root, don't you think I am earning a little more than you pay me?" But the *results* of his efforts with brain and muscle often say to me, "Mr. Root, that man is doing splendidly, and it begins to look as if he is really worth more money than he is receiving."

Right in line with this talk is one of the greatest sources of happiness. You may build air-castles in your own mind, my young friends, but do not tell them out loud, and do not get your expectations up too high. The young relative of whom I spoke in a former chapter is going to try poultry on his 12½ acres. He said he believed he could make every hen earn him a *dollar* a year. I think he is putting his expectations too high. I should much rather have him give an accurate statement of what he *has* done with hens, than to hear him tell what he is *going* to do. He has an excellent locality for fowls, and he can easily make a nice room for them in the side of a gravelly hill adjoining his barn and stables. One of the poultry-journals states that it will cost 10 cents a month to keep a hen, where you are so situated as to be obliged to buy every thing. If you raise it, it will cost pretty nearly as much; that is, what you raise ought to be worth the market price. If he keeps only about 50 fowls on an average, they will probably get their own living on his 12½ acres, six months in the year. This will reduce the expense to 60 cts. If they lay 100 eggs apiece in a year, I think they will do pretty well; and I think he will do pretty well if he makes his hens pay a clear profit of 50 cts. each. If he makes this his estimate, and then does *still better*, he will enjoy keeping poultry. If, however, he fixes his figures at a dollar each, clear profit, and gets only 50 cts., he may feel somewhat like grumbling; and if his poultry should cost him more cash right out than he gets back in a year, there can't be very much happiness of any kind about it.

Now, boys, in view of this, don't set your

figures too high. Make up your mind to put in an earnest, hard day's work every day in the year, with brain and muscle, and then decide to thank God, the great Giver of all good, for whatever he gives you. In these remarks I would not think of discouraging a young man from trying his hand with tools—especially, *simple* tools belonging to almost any trade or industry; but I would discourage the habit of having a great lot of tools about him that he can not use enough to pay the interest on the money; and especially would I dissuade him from thinking he is smart enough to do any thing that *any* mechanic can do, with his years of experience and skill. One of the rising sins of Young America is a disposition to think he is smart enough to earn good wages at almost any calling, without learning a trade. Almost every day, nice-looking young men are coming to me, begging for a place. Sometimes I ask them if they have any trade, or what they have been accustomed to work at. The reply comes, almost every time, "I have not worked at any thing but odd jobs; but I guess I can do almost any thing you want done." We are just now in want of a printer; but I have not asked any of these young men if they could set type. I am quite sure they would think they could, and no doubt they would go to work without a bit of trouble, provided I would pay them 10 or 12 cts. an hour while they are learning how, and they would think they ought to have this, even if it took an expensive and skilled man to teach them, and even though they were a good deal more trouble than they were worth.

Do you see where we are tending, friends? Thousands upon thousands are wanting something to do, and yet, when wanted they do not know how to do it. Do you ask what I advise right here? I advise you to do exactly as the boy did who is now earning a thousand dollars a year; yes, even though you do not earn enough to pay your board, for you had better work for nothing and board yourself than to remain idle. If you can't get a chance to do even that, get some type, and go to work at home by yourself. Take good, well-printed books for your guide; and when you can do some nice printing, take a sample of it to some printing-office, and tell them you have got far enough to do work like your specimen. I think you will soon find a place where you can get *every cent you are worth*.

To be continued Feb. 15, 1887.

SPREADING BROOD IN THE SPRING.

THE DANGERS ARISING FROM THE PRACTICE.

THE discussion at the Indianapolis Convention that interested me most was that over the above subject. I ached to ventilate some of my own views on the subject, but could not get the floor—because I am so small in stature, I suppose. If the editor of GLEANINGS will allow me the floor in this great informal convention of bee-keepers, my thoughts may come in good play, as spring will not be very long in approaching.

I take the ground, that inserting a frame of honey in the center of the brood-nest, to stimulate brood-raising in early spring, is generally unnecessary, and often injurious. It is a reasonable theory, which I think I have proven by observation, that the instinct of a good queen is to fill about six L. frames as rapidly as conditions will permit. If she is a poor one, no amount of coaxing will make the matter much better. Now, what are right conditions? They are, a sufficient quantity of proper stores, either in the hive or coming in, favorable weather, and healthy bees enough to take care of the "babies." The place to secure good food and healthy bees is not shade. My experience says that there is scarcely any thing worse for bees in spring than that. A flat, damp site may be perhaps as bad as a shady one; but it is no worse. Shade is an excellent harbor for dampness, and for wet, moldy hives and diluted honey. The latter will breed more or less disease.

Healthfulness is a more important factor than is generally supposed. I have known a form of dysentery, as it seemed, to cling to a colony in a shade, or a flat, until along in April, and they would dwindle in spite of all the brood and bees I might give them. If there is any case when one may safely and advantageously spread the brood of a colony with from only two to four frames containing brood in each in early spring, it is when the hive sits right out in the sun. Unhealthy conditions make bees puny, and exposure and hard work wear them out. Why should they not? Right here, it appeared to me that those wise heads at Indianapolis foraged all around a point of great importance. Several objected to spreading brood, because it would so often become chilled in the operation. Have they never thought about the poor bees? While the system may, with care, be sometimes practiced to advantage, I have reached the conclusion that spreading brood is unprofitable, not so much that it is death to the brood, as because it is death to the bees.

Prof. Cook names, as one advantage of sugar-feeding in early spring, that it largely obviates the necessity of bees going out after water in unfavorable weather. Within the hive, the additional labor imposed upon the workers, scanty in numbers or puny in health, by the process of forcing (consuming and feeding, and in protecting such quantities of brood), is wearing upon them. When they must go out on those cold, cloudy days to get water from those chilling, mucky pools, many of them become numbed and never return. I have known a colony to lose in numbers very perceptibly in one week's time, under this kind of treatment. Our wet, backward seasons are one of the most unfavorable conditions, and forcing rather augments than overcomes the evil. When weather and other essentials

favor it, the instincts of both bees and queen are to multiply.

But I am inclined to think that, by the time about six frames become well filled with brood, and well covered with bees, that the case becomes altered. Beyond this number the queen is not nearly so apt to reach out and fill up the outside frames. Then bees are hatching rapidly, and the weather has generally become warmer; while one can at the same time insert a frame of honey and have the queen fill it with eggs, without making the same draft upon the energies of the bees, as if there were only enough to cover four frames well instead of six.

Whatever may be the wisdom and value of the above conclusions, I am certain that, if we would practice stimulation in early spring, we must proceed very cautiously, and be sure that conditions are favorable.

—GEO. F. ROBBINS, '93 '61.

Mechanicsburg, Ill., Dec. 22, 1886.

RED RASPBERRIES AND BLACK BEES.

MILKWEED HONEY.

ALTHOUGH white clover is indigenous to our locality, it is quite a rare thing for bees to work very hard on it. Indeed, in some seasons when it blooms profusely they will not work on it at all. The reason for this disregard of clover is the abundance of a much better honey-producing plant—the wild red raspberry.

This section has been timbered largely with hemlock which has been cut off, leaving a mass of brush ready to catch fire. Almost invariably after these tracts burn over, the red raspberry springs up. There are hundreds of acres of this plant within range of our bees. Its period of bloom is identical with that of white clover. By its color and consistency, its honey can not be distinguished from the white-clover honey, but it is far superior to it in richness and delicacy of flavor.

Basswood is also quite abundant here, and we occasionally obtain large crops of honey from it. Unless, however, the weather is just right it yields little or no honey with us. During the last two seasons we have not obtained an ounce of surplus honey from it. Both these years the weather has been cold and rainy while it was in bloom.

Milkweed furnishes quite a large quantity of honey, blooming just after raspberries, and just before basswood. This year my 62 colonies gathered a little over a ton of its beautiful, thick, amber honey, in six or seven days. This makes an average of about five pounds per day per colony. I have been greatly surprised at the complaints of the little appendages which entangle the bees' feet. I have watched closely, and have never seen a bee entangled.

A REPORT FROM BLACK BEES.

I started last spring with 61 colonies, three of which were very weak, and made no surplus honey, but built up into strong swarms by the time the honey-season was over. This report is, therefore, actually from 58 colonies. I received 6112 lbs. of honey, of which 1213 is comb, the rest extracted. About 3500 lbs. of this is from raspberry, with perhaps a little white clover mixed with it, about 2000 lbs. from milkweed, and the rest, 500 or 600 lbs., from buckwheat, goldenrod, etc. I have 87 colonies packed away in chaff hives, all in good condition at the present writing.

My bees are all blacks. I have never had any ex-

perience with Italians, and can not, therefore, intelligently compare the two races. I have never had any trouble with moths, but have to watch the bees very carefully to guard against robbing. A neighbor, about six miles distant, who has two apiaries containing over a hundred colonies, nearly all Italians, told me he has obtained a little over 3000 lbs. of extracted honey. 6—WILLIS EARLY, 61—87.

Sherman, Pa., Jan. 4, 1887.

MAKING HONEY VINEGAR

SOME VERY IMPORTANT SUGGESTIONS IN REGARD TO THE MATTER.

WE make several barrels of vinegar every year, and sell it to the folks in town, at 25 cts. per gallon, and have had no trouble so far to sell all we had. The demand is increasing every year, selling to some of our merchants' families who are selling vinegar at their stores, which they buy of the trade in Chicago. I asked one merchant's wife why she bought my vinegar. "Oh!" she said, "the store vinegar eats up my pickles." It takes two pounds of honey to make a gallon of vinegar, and two years' time to make. We make the most of ours out of refuse honey, or honey that we can not use for any other purpose, and would otherwise be lost or wasted. We retail a large quantity of honey; and when the honey is candied there will be considerable left sticking to the sides of the barrels. We always wash out all the barrels we expect to use again. The first washing that takes off the honey, we put in the vinegar. It is clean; it is nothing but honey and water. Then, again, when we are extracting honey we have a box with a wire-cloth bottom which we set over a barrel that has the upper head out. Into this box we put what cappings we have to drain out the honey. In 24 hours we empty those cappings into a barrel that has some water in it, to soak out what honey remains, straining them once or twice a day. The barrel will hold what cappings we get in a week. About once a week we strain out the water and put it in the vinegar and melt the cappings into wax, so there is nothing lost. I don't like to see any thing thrown away that we can use. Again, there is always more or less honey that can be made into good vinegar that is not just fit to sell for nice honey. In that way it is saved.

To know when the water is sweet enough for vinegar, put in a good fresh egg, and make the water sweet enough to float the egg so there will be a patch of the shell out of the water about as big as a silver 10-cent piece; then it is about right. We keep ours standing in barrels, with one head out, to give it air; for air it must have to make vinegar. Tie a square yard of cheese-cloth over the top of the barrel, to keep out dirt and flies, and other insects. Keep under cover out of the rain, in a warm dry place. We keep ours standing in one corner of our shop through the summer, and put it down in the cellar through the winter, and take it up again when spring comes. When we are changing either in the fall or spring, we find some that is fit for sale. We take it into our dwelling-house cellar and put it into our retailing barrels, which we keep there for that purpose. I have been thinking of late whether it would not be a good plan to make up all our cheap honey into

vinegar; but I don't know how much it could be sold for at wholesale. I must look this matter up. It may be that we can do something in this direction to relieve the market of our low-priced honey. Honey is getting to be so plentiful and cheap that we must turn it into every channel that will take it.

Platteville, Wis.

E. FRANCE.

Friend F., your suggestions are exactly what we have wanted for a long time, and we are especially glad to have you give us the full details of the matter. The question has been asked over and over again. "How much honey is needed for a certain quantity of water?" Now, as honey varies so greatly in density, it has been very difficult to give any positive formula; but your plan of trying it with an egg fills the bill exactly; also in regard to the temperature of the place it is kept, and the amount of air to give it. I think every one of our readers can go to work and make vinegar, with such directions. Good cider vinegar is worth here from 10 to 12 cts. per gallon by the barrel.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HONEY EXHIBITS AT FAIRS.

GLEANINGS of Dec. 1st at hand, containing cut of my exhibit at our county fair. I feel greatly indebted to you, and thank you for your very able notice. Your remarks echo my sentiments precisely, in regard to the advancement of bee culture, and I know of no better place that we can come before the people and show and explain the rapid strides that this important branch of agriculture has taken, than at our respective county fairs. At present our fair officials do not notice this branch as they should, but it rests with us to make them as attractive as we possibly can, and *attractions* please the managers, and then no doubt we shall be classed and made permanent as attractions now are. "To educate the people" should be our aim at the present, and we can ill afford to hide our candle under a bushel in this advancing age. E. R. NEWCOMB.

Pleasant Valley, N. Y., Dec. 6, 1886.

SEALING GLASS HONEY-TUMBLERS: FRIEND J. A. ABBOTT'S PLAN.

I notice in your last number an article on sealing honey-tumblers, etc. This reminds me of a plan I devised and exhibited at our London show a few years ago, and for which I was awarded a special prize. Instead of warming the glass I just gave the edge a rub on a stone sprinkled with sharp sand, which almost immediately gave it a "tooth" to hold the wax. The edge was then dipped in a mixture of equal parts of wax and rosin. I found this mixture much better than wax alone, as it stuck much tighter and never cracked. I prepared some sheets of nice thin paper by dipping them into hot pure beeswax, though sometimes I covered one side only by floating the sheets on the wax. When cold, these sheets were fixed on top of the jars by about the same process as you often use to fix foundation in supers, but much less rubbing is required. Just passing the handle of the knife over once was sufficient. The sharp edge of the blade was then run round, and the air-tight and

natural honey-sealing was complete. If the glass was not roughened a little, the wax was liable to leave it after a little while, but the wax edge and the paper never parted after they had once met. It is possible your correspondent, Dr. Mason, may have read some description of this plan, which I fancy was described in the *British Bee Journal*.

J. A. ABBOTT.

Beeton, Ontario, Can., Dec. 29, 1886.

A FEW MORE POINTERS ON INTRODUCING.

There are a few points about introducing queens that Ernest did not give in connection with this subject in a late issue of GLEANINGS, which I should like to know. 1. Is it best to introduce a queen, that has had a trip in the mails, immediately on her arrival, or wait a few hours, or until the next day? 2. If you wish to exchange queens in a hive, do you put in the new one at the time of taking the old one out, or do you prefer to leave them queenless awhile? If so, how long? 3. Do you put the attendant bees in with the new queen always?

A. A. FRADENBURG.

Port Washington, O., Dec. 23, 1886.

1. Put the queen, immediately after her arrival, directly into the hive. In fact, I think it will be much better than to wait awhile, as you suggest.

2. Very frequently we take out and cage a queen, and introduce another one in her place, at one and the same time. We once thought it better to allow the hive to remain queenless before caging another queen; but by the Peet process of introducing we have lately found no trouble in introducing a queen at once. We keep only Italians, and I am not sure you could do this with hybrids, Syrians, or Cyprians.

3. If you find attendant bees in a Peet cage, as you probably will in a great majority of cases, cage them and the queen together on the comb. I do not know that it will make any difference to us whether the queen is caged on a comb, with or without attendant bees.—Right here I will say to our readers, if any of you have a desire to ask questions on some topics connected with our own apiary, on which I have not fully enlarged, be free to write us, and your questions will be answered either in GLEANINGS or by private letter. ERNEST.

THE PRINCIPLE OF THE ALLEY TRAP NOT NEW.

Alley's drone-trap may work very well, but it is not new. I do not know who invented the first drone-trap; but in the year 1866 were different drone-traps in Germany in the market. I bought one of them in 1867 from G. Dathe, Eystrup, Germany. This trap was constructed on the same principle as the Alley trap. It had two different chambers—the first one, in connection with the alighting-hole, had a series of holes large enough for the worker-bees, but too small for the drones. A prolonged canal opened into the second chamber, made of wire screen, through which no drones, but worker-bees, could pass. This canal is for the same purpose as the wire cones of Alley's trap, but it was closed by a small piece of light cotton stuff which easily opened into the second chamber, but closed the entrance to the first one.

This wire screen could exclude the drones, but the queen could not be excluded with certainty. The screen was not exact enough, and the wires

did not stay in place all the time. About 1876 was the perforated zinc in use in Germany; and since that time drone-traps were made out of perforated zinc. The idea of catching a queen is not new either. W. Vogel, *Bienenzeitung*, 1880, p. 46, talks about one, but only in a short way.

Selma, Texas, Dec. 3, 1886. L. STACHELHAUSEN.

A LETTER FROM SCOTLAND: HEATHER HONEY.

We don't have so severe winters or warm summers as you have, neither have we such large yields of honey; but for all that we have managed to raise enough to bring it to one-third the price it was 4 years ago. At that time white-clover honey in 1-lb. sections brought 30 to 34 cents; now it scarcely sells at all. There is some inquiry for heather honey. I do not know whether you have any heather in America or not. I never saw it even mentioned in GLEANINGS. It is very dark in color, not so beautiful as clover honey; neither, to my taste, is it as fine. R. ALLEN.

Overtown, Dyce, Aberdeenshire, Scotland.

REPORT IN RHYME.

I have sat down, in order to fix
Out my report for 1886.
I began in the fall of '85
With all my colonies only five
I got all things ready, I trust,
And packed them away in good sawdust
All around, just up to the eaves,
And filled the crates with forest-leaves.
So I fed them up very strong,
For you know the winter is quite long.
So I gave them an abundance of food
To keep them from cooling or need
I waited till the elm and maple bloomed,
And other early flowers, with their perfume,
Were with sweetness filling the land,
Before I set them on their summer stand,
Which, after I did it was truly alarming
How soon they got ready for swarming.
About the time I was planting my corn
I wrote to a bee-man, Thomas Horn,
For a pure-blooded Italian queen,
And received as fine as ever was seen.
So I worked every day like a man,
But I at once adopted the Heddon plan:
For on having no after-swarms I was bent,
I say it will work all right and prevent:
For each colony increased but one,
And to take their honey was only fun
For just as sure as I'm alive
They made surplus pounds 25.
But I had nearly forgotten to tell
I reared several queens to sell.
And I have now fully organized,
What it is to have my bees Italianized.
They do not always appear to be so cross,
But just you come up and be boss.
They will let you take from them their store
Without stinging, and that's a fact
Thus any person can plainly see,
For honey and gentleness they are the bee.
That every lover of bees should keep.
Who wishes to produce good honey cheap
I weighed the stores of all my bees with care,
And found they had plenty and to spare,
On such stores I think they will thrive,
And all come out in the spring alive.
So, now, to you I must all confess
To whom I owe so much success.
Doofittle, Heddon, Chaddock; and A. I. Root,
Though named last, does not stand foot—
Of Hutchinson, C. C. Miller, and all the rest,
I can not say who is best.
But I have read Root's work, his A B C,
All the way from A to Z,
And GLEANINGS is the thing for me
To study while working with the honey-bee.
So I have all my bees packed again this year,
And will end my story right here.
So I will build a happy good-sucht,
Until spring reveals my prospects to light.

Pearson, Ohio.

E. B. HAUGHEY, 5-10.

HOW HIS WORSHIP, THE TOAD, WAS STUNG.

Two neighbors (brothers), formerly neighbors and scholars of Dr. Dzierzon, old bee-keepers, relate the following, to which they were eye-witness: A large toad, which they had often seen among their hives, came one afternoon out of his retreat, a small marshy place behind their apiary. He stopped in front of a hive, catching some incoming bees, when all at once he got stung on his tongue, which swelled up so quick that he could not with-

draw it, but hung swelled out of its mouth, looking very comical. He withdrew, not to be seen again. You know taxidermists skin and stuff toads sometimes. Although they have a thick skin, the moment you put a little common salt on their back they become very sensitive. F. J. M. OTTO.

Sandusky, O., Nov. 6, 1886.

FOUR COLONIES DEAD ALREADY: WHAT KILLED THEM?

Out of 18 colonies, 4 are now dead, they dying during this cold spell. The weather was only twice below zero, the first morning 1°; and the morning after, 9°. My bees are all in single-walled hives. All have honey enough. We had about 6 in. of snow. I didn't remove the snow from the entrances. When I discovered that they were dead I opened two of them. I found them clustered naturally, also all the cells in the cluster full of bees. It looked to me as though they were killed instantly, without warning or time to change position. They had honey in their sacks, so you see they didn't starve. According to Dec. 1st GLEANINGS they didn't smother on account of snow. I haven't meddled with them since cool weather began. I can't find any other bees dead in the neighborhood. I wish to know what killed them so early in the season. I may lose all I have before spring, if somebody doesn't tell me what to do. F. P. HISH.

Henton, Shelby Co., Ill., Dec. 9, 1886.

Friend H., it is very unusual for bees to die in the manner you describe, especially if they had sealed stores all round the cluster. The fact that you found honey in their sacks, is not sufficient. When bees get so nearly out of stores that they have nothing but unsealed honey, and cells containing some honey and some pollen, they often die something in the way you describe. There needs to be plenty of good sealed stores on all sides of the cluster, so that every inmate of the hive can have access to it easily. I do not know that I ever saw a colony die under the above circumstances, unless it was where the stores were evidently of so poor a quality that dysentery set in. It may be, however, that your bees gathered something poisonous; but I should hardly think you would find them dead as you describe, even then. I do not know how to suggest any remedy for such a state of affairs in the winter time.

A NEW HONEY-PLANT.

I inclose a package of sweet-melissa seed. See description of same by T. J. Burrill, in *A. B. J.*, Oct. 13, 1886, page 651. My bees, the past season, worked from morning till night on melissa growing by the side of spider-plants, only occasionally gathering honey from the latter. In hot dry weather they worked lively on melissa in preference to all other flowers, of which we have quite a large variety. If my bees do not work better on spider-plants next season than they did this I shall raise no more for them.

Carpenter's square, or figwort, which grows in small timber near the creek, is more attractive to them.

Melissa imparts a citron-like flavor to honey, which our people consider delicious. I have grown melissa since 1881, but have kept bees only two years, commencing with one colony as an experiment. I increased to 15 good stands with about 50

lbs. of honey to each hive, excepting three, which have fully 100 lbs. each.

I have not lost a colony yet, and I winter them in a cellar which is not very warm. I have had applications for seeds, from different portions of the U. S. and Canada. I believe there is nothing better; and if it succeeds as well in every locality as here, I shall be amply repaid for my trouble in introducing it. Please give the seed a fair trial, and report to me in due season. A. C. TYRRELL.

Madison, Neb., Dec. 4, 1886.

CLASS LEGISLATION.

God made man,
And man loves money.
God made bees,
And bees eat honey.
God made the earth,
The earth raises flowers;
We do not produce them;
So they are not ours.
The products of the mine,
The land, and the sea,
Should all to God's children
For ever be free
To take and use as they may have need,
Leaving the rest their brothers to feed.

The iron, the copper,
The coal, and the zinc,
Are the gift of his hand;
But who, do you think,
Would allow you to dig some.
In case you should wish
To make you a fire,
A shovel, or dish?

Now, Brother Miller,
Pray tell, if you can,
Why for God's gifts
We pay tribute to man.
What is this that we hear
About class legislation,
Contention, and strife,
All over this nation

About outdawns and lockouts,
Boycotts, and strikes,
Gould and Vanderbilt,
Russell Sage, and the like?
What makes those be called
The kings of the nation?
Echo says what,
If not class legislation!

Michigan City, Ind., Jan. 3, 1887. W. W. MALTHBY.

FROZEN BROOD.

I am satisfied that there is more than one phase of foul brood as described in the convention at Indianapolis. I have had brood die in the cell, and dry up, and it created a stench almost unbearable. Still, I gave those dead-brood combs to strong colonies of bees, and they cleaned them up and all went along nicely. No more foul brood there. I am satisfied that it was not foul brood as you have it, but some at the convention described it as foul brood in the dry state. I never saw foul brood in the pus form, as you gave the description at the Indianapolis convention, and also others. I have been troubled three times this way each time in the spring, after a hard cold winter. I claim it is frozen brood, and nothing else.

Martinsville, Ill.

WM. ST. MARTZ.

HIGH VERSUS THE LOW PRICE OF HONEY.

I have just read Dadant's article about the sale of honey, page 981. The trouble is, that the people who eat honey do not find it cheap. I sometimes buy honey, as my own bees are some distance in the country. I have always had to pay, at least 20 cents per lb. I am inclined to think, that, if people who like honey could get it for 10 cents per lb. or less, the consumption would be doubled or trebled. I speak of Cincinnati prices. I live there.

THOMAS HUNT.

Conway Springs, Kan., Dec. 21, 1886.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN ON BEES OR OTHER MATTERS, will receive one of DAVID COOK'S excellent five-cent Sunday-school books.

Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and

Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' AMATEUR BEE-HIVE FACTORY.

I BELIEVE I have not told you yet much about Jimmie's playmate, Sam. The two boys, as you may guess, were fast friends. Their likes and dislikes were much the same. They both were of a mechanical turn of mind—at least you would think so if you were to take a look at Mr. Green's barn and fences—little toy windmills here and there, which they had made with their knives. Besides these they whittled, out of blocks of wood, boats that they were wont to sail in a tub of water. Such waves as those boats would stand! The boy who made a craft which would stand the most sea (tub-waves) was the best fellow. Then there was a great variety of other things which they made, such as only the genius of a boy can evolve, aided by his inseparable, ever-ready companion, a *jack-knife*.

Mr. Green, noticing the bent of their minds, and desiring to encourage it as well as to put it to some profitable use, entered into a contract with old Santa Claus. The terms of said contract, as drawn up by the lover of little boys and girls, ran in this wise:

—OFFICE OF—
SANTA CLAUS.
DEALER IN

—PRESENTS FOR BOYS & GIRLS.—

Terms strictly Cash.

N. Y., Dec. 10, 1886.

For the sum of \$6.50, received, I agree to deliver in the morning of Dec. 25, A. M., at the respective homes of each of the boys Samuel Green and James Brown, a chest of tools, said chest to contain a complete assortment of the best tools.

(Signed) Santa Claus.

Old Santa, even if he is old, you see writes plainly enough, even yet, for boys and girls to read. Jimmie's parents were too poor to enter into any such contract with Santa Claus in favor of their son. Sam's father, however, thought he could afford a chest for his neighbor's son, both as a reward for regular attendance at Sunday-school, and because Jimmie was a boon companion of his own son.

I need hardly add, that the contract was duly fulfilled at the day and hour, and that the boys were rejoiced—"Just what we wanted," they said.

"Where shall we have our shop?" said they, on Christmas morning when they had got together. "Oh! I know," said Sam; "our old barn-loft will be just the thing."

Thither the boys repaired, lugging along their chests of tools. The loft had been used for the storage of stray pieces of lumber, stove-pipes, boots, etc. On their arrival they found cobwebs and a general litter. Spurred by the thought of what a grand place this would be for a shop, the boys soon had it cleaned up,—rubbish thrown out, and the pieces of boards packed neatly away.

When Jimmie was putting the last board upon the pile in the corner, he exclaimed,

"My! what's yer pa goin' to do with all them boards? Did he say you might have 'em?"

"He hasn't said any thing about them yet. They were some that were left from the corn-crib, and we put them up here about a year ago. I'll go and see if we can have them."

So saying, Sam clambered down the ladder just in time to see his father, who was just starting for town.

"Say, pa, did you have any particular use for those boards in the barn-loft?"

"I declare, I had forgotten about those boards. If Santa Claus did not say so, I believe he intended that they should be the property of you boys," said Mr. Green, with a twinkle in his eyes that Sam understood. Sam needed no further hint, but hastened back to the loft.

"Did yer pa say we might have 'em?"

"He did not say so in just so many words, but—"

"Good!" exclaimed Jimmie, who took in the situation. "Won't we just have a picnic? We'll make carts and windmills—big ones I mean; by cracky! yes, and bee-hives!"

During the early part of the afternoon, with Mr. Green's assistance, the boys made a work-bench. When it was finished it was discovered that they had no vise.

I tell you, boys, said Mr. Green, at the Home of the Honey-Bees, Medina, Ohio, they sell a very pretty little implement of this description for only 15 cents. But how can you get the money to purchase each of you a vise? I have a pile of wood which you can put in the wood-shed, nights and mornings, after school. If you will pile it all nicely in the shed I will advance you the money now, and you can send for the vises to-day.

"Let's do it now, and have the job off our hands," said Jimmie.

"We shall hardly have time," said Sam.

"Oh, yes! both of us can do it if we work a little after dark. It's only 3 o'clock."

Sam looked at the pile of wood with some misgivings. He "never *did* like piling up wood."

When, however, Jimmie commenced to load up with an armful, Sam followed his example. Ere long the pile diminished very appreciably. When it came supper time, the boys were both loath to give up the job. They thought it "just fun." Sam could not tell just why he enjoyed it. After supper the boys worked more energetically than ever, meantime talking and planning what things they would make and do, whether they could make bee-hives, etc. As it grew dark soon, they worked by—the light of a lantern which Sam's sister had thoughtfully hung up. When the work was done, nothing would do but those boys must send for the vises before they went to bed. Sam's mother produced writing-materials; stamps were inclosed, and the order sent.

To be continued.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it!"

THE KITE, AND HOW IT FLIES.

The kite you sent, we think a beauty. It came safely. Mr. Mace put it together for me, and helped me to sail it. It went up like a thing of life.

CORA BLANCHARD.

Mt. Hope, Morris Co., N. J., Nov. 30, 1886.

HIVES MADE BY HORSE-POWER.

I am a little girl. Pa had 9 swarms this spring, and they increased to 15 this summer. He got about 550 lbs. of honey. Pa has a shop where he saws his lumber out, and makes his bee-hives. He runs the machinery with the horse.

LIZZIE J. DOTTERER.

Newtown Mills, Forest Co., Pa., Dec. 14, 1886.

A HIVE WITH GLASS ON THE BACK, AND WHAT THE SUN DID.

My father gave me a hive of bees, if I would watch his bees, and hive them when they came out. There was a piece of glass on the back of my hive, and the sun shone through and melted two of the combs down. Papa took the honey out, and the bees built it up again. Next year I will put the hive in the shade.

BENJ. F. STOUT.

A QUEEN'S HEAD THE WRONG WAY IN THE CELL.

My pa had 45 stands of bees, and I have one. Pa did not get much honey last season. The bees are in good condition for winter. Pa and I were looking at the bees, and we found some queen cells, and pa did not want them, so I pulled off one of them, and the queen's head was turned the wrong way.

EUGENE WILLIS.

Jonah, Texas, Nov. 26, 1886.

AN ITALIAN QUEEN FIVE YEARS OLD.

Pa has between 50 and 60 colonies of bees. They have been doing very well this summer. He had an Italian queen which was five years old. Last spring she died. I read GLEANINGS, and find it

very interesting. We keep the Brown Leghorn chickens. We find they are good layers. I have a pet pigeon named Charley Boy.

Cold Spring, Ky.

LILLIE LURKER.

EDWARD'S SWARM OF BEES.

One day I was going out to work, and I saw a swarm of bees. They were on a maple-tree, and father gave it to me. He said if I would take care of it I could have all the honey that they would make. I got about a quart of honey. It was a small swarm, and that is why I did not get much honey. I have them in the cellar now. I am going to try to do better next year.

EDWARD STOUT.

Brighton, Iowa, Dec. 27, 1886.

SAWING OFF A LIMB ON WHICH WAS CLUSTERED A SWARM OF BEES; RESULTS.

I am a boy 11 years old. My pa keeps bees. As he works in Vienna I have to tend to the bees. We live on a farm. The bees nearly stung me to death last summer. The bees swarmed and settled in the top of an apple-tree, and I climbed the tree and sawed off the limb, and the bees got after me and ran me through the cornfield. I have lots of fun skating.

FRED BELLEMEY.

Vienna, Ill., Dec. 28, 1886.

Yours is not the first instance we have had of the unpleasant results of sawing off a limb holding a swarm of bees. Always be careful about jarring the limb while sawing; and when the limb is nearly off, let it down easily with a pitch-fork, or, better still if you can, reach it with your hands.

COLD WATER FOR STINGS, ETC.

My pa's bees are in the cellar. He built a stone wall around his bee-cellar last summer, and made a cement floor. I wish I could come and see Huber, and blow the whistle too. Ma reads the letters to me, and I want to hear some more about Jimmy and Ted. When I step on a bee, I put my foot in water. One day last summer a bee stung me in my face; and when I told ma I was stung she said, "Well, run and put your foot in water;" and then I told her it was my face.

CHARLIE PALMER.

Hart, Oceana Co., Mich., Nov. 29, 1886.

Yes, if you come to Medina we will give you a chance to blow that big whistle.—Cold water for stings, I know, makes the place affected feel better, but I am not sure but that you would get along about as fast if you did nothing.—I haven't seen Ted for some little time. I suspect that Jimmie, although I haven't heard him say, does not care to have Ted tag him into their new shop.

SWARMING, AND WHAT THE BOYS DID.

One day when my brother came in from the field for dinner we were sitting on the well-bed, and my brother walked around toward the bees, and he hallooed out, "Oh! the bees are swarming! I was bareheaded, and my father was working in the tile-factory. I jumped up and ran all the way to the tile-factory and told my father. I started right back and ran all the way, and my father came, and then they began to settle in the garden on the peas and on the ground. Father took the smoker and drove them into the hive which he had set close by. It was very hot, and we cut some bushes and laid them on the hive to keep the sun off, and they stayed in the hive.

WILLIE HUNT, age 12.

Dodson, Montgomery Co., O., Dec. 21, 1886.

A LITTLE GIRL TELLS HOW SHE PERFORMED THE
FEAT OF TAKING A SWARM FROM THE
"TOPEST" BRANCH OF A TREE.

In spring my father had 19 colonies, and increased to 49. He sold one this fall. They are all in good condition. He has them mostly in chaff hives. We sold over 600 lbs. of honey. I help pa sometimes when the bees swarm, and when he takes the honey from them. I hived but one swarm this summer, and that was on Sunday, when pa wasn't at home. The swarm got on the "top-est" stem of the highest tree. I did not know what to do. I called my sister. There was a wagon standing below. I climbed up the tree and sawed off the stem. The bees all fell on the tongue of the wagon. After I got down the tree we stood the hive beside the tongue and brushed the bees in the hive. We got them in nicely, but I got stung, and my sister too. I was stung "pretty" many times, but not as many as my sister. Her face swelled so hard that she didn't see any more in one eye.

DINA BLUNIER, age 13.

Roanoke, Ill., Dec. 23, 1886.

You certainly performed quite a feat in getting a swarm from the highest tree. I wonder how many boys could have done it. You deserve a chromo for that; and if your father didn't give you that swarm I think he ought to have done so. I will tell one of the clerks to pick out a large panel chromo and send it.

THE BEE, AND WHAT IT IS.

The bee is a very busy creature. There are two kinds of bees—the black and Italians. They put the bees in hives, and when the hives get so full of bees they will swarm, and sometimes they will swarm twice a year. We had a hive of bees, and other bees came and took all their honey. I and papa saw a bee in a tree, and I got stung on my lip. It swelled up one inch. The bees make honey in summer, and they live on honey in winter. Some folks have two dozen hives of bees. The bee honey is good. When I was down at my grandma's I got as sick as a dog on honey. The bee has a stinger. I ought to know, for I got stung with them. I don't know how many times I got stung. I could not tell or count how many times. The bee has six legs and two wings. The bee has two eyes. I don't know what the colors are of the eyes. Its back is yellow; not all the back either. At the end of the stinger it is black. I don't know where they carry the honey. CHESTER TURNER.

Brookville, Ohio.

Your notes on the bee are not all of them correct, but I suppose enough so for all practical purposes for the little folks. It would be hard to tell just what is the color of a bee's eye. Through a microscope they look as clear as crystal, but without any microscope they look brown. Perhaps you know that those big eyes are compound. For a fuller talk to the little folks on this subject, I would refer you to p. 42, in the year 1885.

THE POLLY OF STANDING IN THE WAY OF FLYING
BEES.

Papa has 12 colonies of bees. In the winter time he puts on an outside shell, much larger than the hive, and fills the cavity between that and the hive with sawdust or dry chaff.

I will tell you something that happened once

which seemed funny to me, but I presume it did not seem so to papa at the time. There was a storm came up, and the bees hurried home, angry as could be at being interrupted at their work. Papa happened to be standing in their way, and they all rushed up on him and stung him badly.

Frankfort, Mich.

LORA MARBLE, age 11.

It is not wise to stand in front of the entrance, or where you would be liable to obstruct the flight of the bees. A coming storm will start the bees home in great droves, but I hardly think the bees you speak of were angry because the storm interrupted them, but because your papa stood right in the way. When I am in a great hurry to get on the train it makes me clear out of patience to have some great big heedless man block the only passage to the car-steps.

WORKING WITH BEES* AFTER DARK, BY MEANS
OF A DARK-LANTERN.

Tell Ernest to try one of those dark-lanterns for working with bees after night. They are the best. I hold one for pa when he works with his bees after night, and the bees don't fly after it. It is so bright it hurts their eyes. I help pa find the queens. He has 100 stands of bees. We have two carp-ponds. The little fish will eat out of my hand. I have two nice big cats that catch the mice in the bee-yard for pa. ANNIE M. HAINES.

Moons, O., Jan. 5, 1886.

Why, Annie, you have given us quite a valuable item as to the value of a dark-lantern. I can imagine nothing nicer, when working with bees after dark, than to have a bright little girl "shoot" the rays of light from the bull's-eye lantern right on the combs, or wherever else it may be needed. I will try it the coming season, and try to report on it. I will tell the clerks to send you a panel chromo.

THE BEARS AND THE HONEY.

I inclose a piece of poetry which I copied from one of papa's books, "A Grammar of Six Different Languages." I think we had better not do as the bears did.

As two young bears in wanton mood,
Forth issuing from a neighboring wood,
Came where the industrious bees had stored
In artful cells their insidious hoard.
Overjoyed they seized with eager haste,
Luxurious on their rich repast.
Alarmed at this, the little crew
About their ears, undistinct flew.
The heads, unable to sustain
The unequal combat, quit the plain
Half blind with rage, and mad with pain,
Their native shelter they regain.
There sit, and now disreeter grown,
Too late their rashness they bemoan;
And this by dear experience gain,
That pleasure's ever bought with pain
So when the golden baits of vice
Are placed before our longing eyes,
With greedy haste we snatch our fill
And swallow down the latent ill.
But when experience opens our eyes
Away the fancied pleasure flies.
It flies—but oh! too late we find
It leaves a real sting behind.

Sonora, Ohio.

BERTHA JONES, age 11.

Thank you, Bertha; your little selection of poetry is real good. There are too many of us—yes, and little boys and girls, who behave ourselves very much like the two young bears. But we folks don't always profit by our experience, bitter and full of stings though it may be.

TOBACCO COLUMN.

SOMETHING FROM THE ST. LOUIS JOURNAL OF AGRICULTURE ON THE TOBACCO QUESTION.

FRIEND ROOT:—I don't know whether I am taking a liberty in thus familiarly addressing you; but the good turns you have unconsciously done me in furnishing in GLEANINGS the bee-lore I have found so necessary to my purposes have certainly constituted you my friend. I write a brief line to commend your good work in fighting the use of tobacco. I was very much struck with the facts related in the Dec. 15th No., by T. B. Terry (the picture of whom, by the way, is a good one, though a little too solemn-looking); certainly the considerations offered by Mr. Terry ought to be sufficient to induce every married man, if not every man, to give up the tobacco habit. But, unfortunately, to give up the confirmed use of tobacco is a most difficult thing to do. It is true, that I had the nerve to do so, some thirteen years ago, when I found that the use of it was exceedingly disagreeable to my then sweetheart, now my wife. But I think it must have been easier for me to do than for most people. I have known men to make honest endeavors to give up tobacco, and suffer so much that they concluded that the use of it was the lesser evil.

Now, since this is the truth, that the tobacco habit once formed is one that is exceedingly difficult to break, ought we not all to make a greater effort by individual precept as well as example to discourage the use of it by children? Mr. Terry's suggestion, to have a national law, is hardly feasible however desirable. There is but little disposition to enact sumptuary laws, whether relating to tobacco or whisky; but if every father of boys did all he could personally to prevent the tobacco habit being formed by his sons before they become of age, it is hardly likely that, on arriving at years of discretion, they would begin it. As for myself, I have tried to impress upon my big boy that it is a wretchedly poor specimen of manhood that requires to be bolstered up by either smoking or chewing. That, of course, is the temptation to boys. The boy's greatest ambition is to be a man, and appear manly. In his ignorance he is apt to mistake for manly things the swagger and loudness and disgusting habits of roughs and bullies, especially if any of these habits are indorsed by the example of his own father. Let us all do what we can to teach boys that the best and most courageous manliness is that which is founded on virtue, not on vice.

The case of fatal poisoning by tobacco, mentioned by Mr. Terry, is terrible, but no such extreme case ought to be necessary to make every man who has a decent consideration for others to leave off a disgusting practice. As disgusting as is to me the nicotine-laden breath of men with whom I have only business relations, how much more have I thought would mine be to my wife and my little daughter, when they offer the kisses of affection from their clean, sweet lips! There has been no time in my more than twelve years of married life when I thought the solace offered by tobacco could be worth the one-hundredth part of such evidences of affection; and since I should very surely refuse to kiss my wife or daughter if she used tobacco, I should find no justification for expecting

any thing else from them if I did. As a fighter against tobacco and whisky, you may count me a member of your band always.

St. Louis, Mo., Dec. 20, 1886. GEO. B. MORTON.

Many thanks, brother, for your hearty coöperation in this work that lies before us; and may we hope to find every now and then a similar stirring exhortation in your own journal. And, by the way, why can't you and other brothers of the press start in your own journals something like this?

"Any reader of the *Journal of Agriculture* who will give up tobacco because of what has appeared in these pages in regard to the matter, may have the journal one year free, he to give us a written promise to pay us for the journal whenever he shall yield to the temptation, and touch tobacco again in any form."

The letters from those who give it up are to be published as fast as received, for the encouragement of others. The objection has been made, that this is hiring people to do right; but the amount in question is so small it is usually taken more as a piece of pleasantry, and it seems to have the effect of appealing in just the right way to get a good many to get up and shake themselves, and start out in something they have for years known ought to be done. As the resolution and promise come out in a public journal, it is pretty well published and understood in any neighborhood, and few men will care to be seen using tobacco after they have in this public way announced the determination to give it up. It is like giving testimony in prayer-meeting—it strengthens and encourages others all along the line.

I have stopped smoking, and will promise you not to do so again. If you will send me one of your smokers, and I commence using the weed again, I will send you the price of it.

Phila., Pa., Oct. 18, 1886. JOS. B. CREAGER.

I see in GLEANINGS that you said any one who quits the use of tobacco would receive a smoker. Please send me one; and if I use tobacco again I will pay you for the same. MATTIE SCHEIERN.

Wayland, Mich., Oct. 11, 1886.

CLEARNS HIS CONSCIENCE.

I have broken my pledge. I quit using tobacco on bees, but still smoke once in a while. When I came to rake up my conscience I found that I owe you 50 cts. for the smoker you sent, although it was worn out long ago. You sent it with other goods. J. T. FLETCHER.

Clarion, Pa.

HAS USED THE WEED ALL HIS LIFE.

I have been using tobacco in various forms all my life until the past six months. I have now abandoned the weed altogether. Seeing your offer in GLEANINGS, I write to know if I am entitled to a smoker. I am very willing to pay the price of the smoker should I ever use tobacco again. I have 5 stands of bees. E. B. JOHNSON.

Manatee, Fla., Nov. 18, 1886.

OUR HOMES.

And if any man will sue thee at the law, and take away thy coat, let him have thy cloak also. And whosoever shall compel thee to go a mile, go with him twain.—MATT. 5: 40, 41.

LAST Sunday afternoon I found another added to my class in our county jail. He was a stout, ruddy-faced young man perhaps twenty years of age. His face flushed when I spoke to him, and I saw that he was quite bashful; but in a little time we got to talking like old friends. Robert's story was something like this: He came from England about two years ago, and had been traveling about here and there, trying to find work wherever it was to be found. His last job was on the railroad; and on account of reducing the number of hands in winter, he was thrown out of work, and had been vainly trying to find something to do in one of our neighboring towns. A few evenings ago, the man with whom he boards came home somewhat intoxicated. He seemed to be in a quarrelsome, fault-finding mood, and, among other things, he inquired of his wife where Robert was. She told him Robert had gone somewhere to help somebody deliver some goods. He then inquired if Robert had found any work yet; and when told he had not, he broke out with something like the following:

"Well, he is a lazy, good-for-nothing shiftless fellow. He certainly could get work if he half tried."

More remarks followed, not very complimentary to Robert. Now, the truth was, Robert had come home unknown to the folks, and was at that time in bed; but as only a thin board partition separated him from the family, he heard every word that had been spoken, and up he jumped and confronted the man who was speaking ill of him behind his back. I presume some hard and loud words ensued; and finally the intoxicated man drew a pistol. At this, Robert put his hands on the man's shoulder and pushed him away. This gave an opportunity of making a plea of assault and battery, and the boarding-house keeper went for a constable. The constable at once told him he was intoxicated, and refused to make any arrest. The man then went to another officer of the law, who was not quite so particular, and Robert was arrested, and called upon to pay a fine of \$6.40. Robert had not any money, so he could not pay it, and that is why I found him in jail that Sunday afternoon. You may perhaps notice that the above statement is Robert's story for it. I have not heard the other side at all, and, in fact, we do not care anything about the other side just now. When I find these boys in jail, I endeavor to get the full facts in the case, so far as I can, from their own lips, and then I endeavor to show them that, according to Bible teaching, they are condemned by their own words. Robert claimed, as almost all do who get into jail, that he was entirely innocent, and had done nothing. When I had questioned him fully on all the points of the case, I began talking with him somewhat as follows:

"Robert, why did you not stay in bed,

since you had once retired in good order, and thus have saved all this trouble and expense?"

"Why, Mr. Root, do you suppose a man is going to keep still in bed when he hears somebody calling him a good-for-nothing shiftless fellow, and going on in that way behind his back?"

"To be sure, I do expect a man to do just that very thing, Robert."

By this time my fingers were on the Bible, and I opened to the fifth chapter of Matthew, and read:

But I say unto you, Love your enemies; bless them that curse you, and do good to them that hate you.

Again I read:

But whosoever shall smite thee on the right cheek, turn to him the other also.

Robert previously said that he was a member of the Church of England before he came over to America, and therefore I expected to have him at least respect these words of the Savior, that seemed so especially calculated to help us to keep from getting into quarrels or dissensions. To my surprise, however, he promptly rejected all such teachings, saying, "If that is Bible, I don't want any of it around me."

I appealed to one of the other inmates, with whom I had had many long talks, and I expected, of course, he would say that the best thing Robert could have done was to have kept still and let it go. I turned to him. "Mr. Brant, if you heard somebody talking about you in the way Robert has mentioned, after you had retired for the night, would you not have kept still and let it all pass?"

"To be sure, I would *not*, Mr. Root. I would get up and teach him manners."

"Even if it resulted in bringing you to jail?" suggested I.

"Yes, even if it brought me to jail. I don't allow any man to abuse me when I am around to hear it."

I labored with them long and earnestly. I even went so far as to tell them I feared they would be in jail all their lives; but they decided they would take the jail, rather than submit to being "run over," as they termed it. Finally, however, I *did* succeed in getting them to admit, that, if a man *could* submit to be snubbed and abused, without saying a word back, or doing any thing, it would probably save trouble in the general machinery of human life.

"But, Robert," said I, "after the decision had been made, that you were to pay \$6.40 for laying your hands on a man before he touched you, why did you not pay it and have it done with?"

"Why, Mr. Root, I have already told you that I hadn't any money. You know I have not had any work all winter."

"But, it is a sad thing to get into jail, and have it hanging over you all your life afterward. Had you not an overcoat or watch, or something you could leave with some friend in order to keep you from going to jail?"

He finally admitted that he had a watch, and that it was worth \$6.40 a good many times over; but when crowded, he replied,—

"But, Mr. Root, *I was not guilty*. There was no assault and battery about it, and I won't pay it, and that is the long and the short of it."

I looked at my Bible quickly and read the following:

If any man will sue thee at the law, and take away thy coat, let him have thy cloak also; and whosoever shall compel thee to go with him a mile, go with him twain.

Robert said, as before, that he did not propose to come down to any such course of action. He fairly and squarely, when pressed, rejected the words of the Savior. This, in fact, was exactly what I wished him to do; or, in other words, I wished to have him *confess* that the reason why he was brought to jail was because he rejected Christ; and in rejecting Christ he had rejected and *defied* the laws of our land.

In presenting the subject to others as I have presented it to you, dear friends, I have been pained and startled to hear so many decide that Robert had done right—that is, if the facts were exactly as he stated them. I am afraid people are thoughtless, many times, in deliberately deciding to refuse to obey our laws. When I told the story at the noon service, and submitted the question to those gathered there, those who answered first, every one of them, thought that Robert did right in refusing to pay the fine imposed upon him. After a little more thought and reflection, finally several suggested that it was better to pay the fine than to go to jail, even though the fine was unjust, and the party innocent.

We now come to the point of considering the laws of our land. No doubt they are imperfect, and, many times, through false representations of evil men, the fines imposed are unjust; shall we therefore refuse to abide by the decision of the law? God forbid! Perhaps I have, at different times in my life, counseled disobedience to the law; but I am beginning to think I made a mistake. Are we not, dear friends, in danger of arraying ourselves with rebels and anarchists when we thoughtlessly counsel disobedience to the laws we have? I told the boys I would have paid the fine, even if I had had nothing to do with the matter whatever, but that I would have done it under protest, and so informed the officers, and declare I would have redress, if it were possible to do so; but that, for the sake of preserving the majesty of the law, I would submit to whatever it might decree. I think, dear friends, this is safe and sound doctrine.

I did not tell Robert at the time, that I felt quite certain, if his life had been just what it ought to be, he would not have been fined nor taken to jail, but I asked him if he had been in the habit of attending church while here in America. He admitted that he had not very much. I asked him if it was not true that he was sometimes in the habit of drinking intoxicants, as well as the man he boarded with. He admitted that he was in the habit of drinking beer; and although I may be mistaken, his face seemed to indicate that he was given, at least somewhat, to such habits.

Now I want to say to the young friends who may be reading this, that there is very

little danger that any of them will ever get into trouble such as I have described, if they are in the habit of associating with Christian people, attending church, Sunday-school, and the young people's prayer-meetings, wherever they happen to be located, and deporting themselves in a decent and respectable way, such as young Christians are almost sure to do. When I asked Robert if he could not get \$6.40 to save him from jail, he said he had no friends at all. It seems to me a young man is at fault in having no friends, even if he has lived only one winter in a certain locality. In our town there are good men and women—yes, young men and young ladies, who make it their business to look up strangers, and invite them to our meetings, and who try to call them in wisdom's ways. The trouble is, I fear, that those who complain that they have no friends are seeking ways of darkness rather than light.

Now a word to those who are not in jail and not in trouble; that is, not any such trouble as Robert has found. Yes, and I think I may ask for a word to professors of religion, and those who are members of our churches. Have you faithfully followed the words the Savior gave us in our opening text, in your own walks and life? If an enemy should undertake to sue us at the law, and take away a coat, what would be our attitude? How many of us are there who would be willing to give the cloak also, for the sake of peace, unless, indeed, our attention had been called to it by these words? Of course, I do not refer, nor do I think our Savior meant to have reference to highway robbers, such as I spoke to you about in our last issue; but these words were spoken to a class of people who were for the most part, at least, *friends* and *neighbors*—those who had permanent places of abode, and were considered respectable citizens. Why should such go to law? Why should we have *difficulties* and hard feelings with our friends and neighbors? Why should we waste time and money enough on some little unimportant matter to have bought a dozen coats, before the thought even occurred to us of letting the cloak go too, for the sake of peace? If we are compelled to go a mile out of our way to do somebody a service, are we not more apt to grumble than we are to show a readiness to go *two* miles? The Savior's injunctions seem to be to the effect that, if we are to be his followers, it is our duty to do a little *more* than just what we agree to do, or a little more than what we are in duty and justice bound to do. Sometimes I am told that a man would never get along in the world if he should undertake to get a living in that way; but such replies have always made me feel sad. Those who have read GLEANINGS a good many years, especially those real good friends who have been sending me such good kind cheering words during the past few weeks, know that I have tested these teachings just a little. Occasionally, when the spirit seems to be on me, I have done a little *more* than I was asked to do. I have given smokers to those who have stopped using tobacco, etc. Now, of course, you know I do not say this boastfully; but I mention it because I wish to prove to you

that a man will not get *poor* in following Christ's teachings. I have been many times surprised *myself* to see how quickly these things swing around and shape themselves. The one who follows Christ's teachings, and who tries to do it in the real spirit in which Christ gave it, seems to have *strange streaks of luck*, as it were. It hits people a little unexpectedly; and by some strange law that is past divining by our feeble intellects, the evil spirit is driven away—the enemy is disarmed, and hostilities are at an end. You just try it some time when you get into a discussion in regard to a small matter about the justice of a thing. When you see your opponent is honest, but mistaken, good-naturedly give up to him, or give him twice what he asks, if necessary, for peace and harmony. If he insists on your going a mile out of your way, say, "Why, yes, my friend, come to think of it, I will go *two* miles. I do it gladly, too, because it is according to the Savior's teachings." A certain class may laugh at you, and call you a fool. They may tell you that, if you undertake to go through life following out that plan, you will get into the poorhouse, and such like talk. But I tell you, you will not do any thing of the kind. There is a text in the fortieth chapter of Isaiah, that hits the point. It reads thus:

But they that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk and not faint.

OUR OWN APIARY.

CONDUCTED BY ERNEST E. ROOT.

POSITIONS WHEN AT WORK OVER HIVES.

DID you, dear reader, ever have the backache when at work over the hives, lifting heavy combs, in a position somewhat cramped? Did you not sometimes indulge in a good stretch of the body to its fullest height? I have wished once or twice that the hives were on stilts, so that I could work at the hives when standing erect. If I remember correctly, W. Z. Hutchinson, when I visited him, did have his nucleus hives elevated. Our readers will also remember that some years ago we illustrated Dr. O. M. Blanton's apiary. A notable feature about it was that his hives stood on stilts. I believe, however, the majority of the bee-keepers prefer to have their hives on the ground, for reasons which I will not take space to enumerate here.

I sometimes examine, or "go through," 150 colonies per day. To accomplish the work as easily as possible, and at the same time relieve myself of the tedium of one posture when at work over the hive, I have recourse to a frequent change of position. The one I usually prefer is the one illustrated on page 31, last issue. Perhaps you think that such a seat as a hive-cover would hardly be stable enough. Just as much, and more so, than the ordinary milk-stool. You will see, by referring back to the cut, that it permits of an erect posture of the back. When it is desirable to get at or lift out a frame on the

outside of the hive, an inclination of the body, together with the hive-cover, puts the operator within easy reach of said frame. As far as possible, I aim to avoid any curving of the back, or the stooping-over of the shoulders. The inclination of the hive-cover one way or the other, as you will see, regulates the distance to any desired frame without the necessity of bending the back. A regular tool-box, or stool of four legs, will not permit this rocking motion, as you will notice.

When I feel as if I should like a change of posture I kneel in the soft grass (if not wet), my knees almost touching the side of the hive. After I have taken out a frame I drop back on my heels, if I desire to examine the frame for any length of time. About half the hives in our apiary are chaff hives. I can work over these best in a standing posture. As the chaff hive is two stories high, it is rather inconvenient to work with it while sitting or kneeling. However, I do sometimes sit on the edge of a chaff-hive cover; but as the rims of the latter are made of only $\frac{1}{2}$ stuff, I generally stand.

Perhaps some one of my readers will say, "I can't afford to sit down when at work among my bees." I reply, that it depends upon what kind of work in the apiary you are doing. If you are running for honey, then I think I can agree with you for the most part; but if your apiary is devoted to queen-rearing, as is ours, then it becomes necessary to spend some little time over a hive; as, for instance, hunting for a virgin queen, cutting out choice queen-cells, etc. In any event, we ought to avoid curving the back any more than is necessary, whether sitting or standing. I believe the instruction of the writing-teacher to his pupil, to "hold the body erect," is equally applicable to the bee-keeper engaged in rearing queens.

HOW TO HANDLE FRAMES.

To look at one side and then the other of a comb, becomes almost a necessity in queen-rearing. To revolve by the corners a frame full of honey, requires some little strength of the wrists—that is, if the top-bar as the axis of revolution remain horizontal. By turning the top-bar to the perpendicular, the frame may then be easily revolved. I throw out this hint for the benefit of beginners. The veteran bee-keeper will in all probability have acquired the knack intuitively from his long experience. The engraving on page 31 shows the operator in the act of revolving the frame. He is hunting for a queen which had been introduced a few days before. Having loosened the cage, wherein the queen was confined before the bees gnawed to her, he has thrown it upon the ground, which striking with some little force has jarred out a few bees that always collect inside. The bees thus shaken up take wing and return to the hive. Desirous of noting how well the queen has laid, he is in the act of revolving the frame, as I have before described, that he may see whether the queen has filled the other side of the comb with eggs also.

OUR OWN APIARY AT THIS DATE.

At this writing we have had a week or ten days of steady cold weather, the mercury

dropping frequently to zero, and several times six or eight degrees below. If this weather continues much longer I am fearful of the results among our bees. As I stated in Nov. 1st GLEANINGS, I did not then entertain a very hopeful view of the situation—foul brood having reduced our bees. If we had colonies instead of nuclei, I should have no serious apprehensions, even if the weather did continue to be cold.

REPORTS ENCOURAGING.

FROM 68 TO 96, AND 2400 LBS. OF HONEY.

I COMMENCED the season with 68 stands; increased to 96, and took 2400 lbs. of comb honey, nearly all white, which is a trifle over 35 lbs. per colony. This encourages me, as I see Doolittle did no better than I. They are all packed on their summer stands, with nearly one-half under the snow, out of sight, where I shall let them remain, as I know from experience that they are all right, for they drift under in the same way each winter, and always come out as bright as a dollar.

M. T. WILLIAMSON.

Covert, N. Y.

A GOOD REPORT FROM ONE OF THE PIONEERS.

I have sold over 11,000 lbs. of box honey from 80 hives last spring.

GAIN R. SMITH.

Victor, N. Y., Nov. 29, 1886.

108 GALLONS OF HONEY FROM 20 COLONIES.

I have 20 stands of bees, all in good condition. I did very well last summer. This summer I secured 108 gallons of extracted honey.

ALBERT CARTER.

Carrollton, Mo., Dec. 11, 1886.

AVERAGE OF 190 LBS. PER COLONY.

My bees gave me an average, this season, of 190 lbs. each, spring count; had no increase; the best season for honey I ever had, and I could have done better had I been prepared for the honey-flow.

CARBONDALE, PA. J. RUTHERFORD.

600 LBS. FROM 15 COLONIES.

I have had a pretty good harvest of honey—about 600 lbs., in pound boxes, from 15 hives. I took 98 lbs. from one swarm, and it swarmed 3 times this summer. I increased them to 40 swarms. Inclosed find one dollar for GLEANINGS. I have found that the money expended for it has been a profitable investment.

JACOB RICHARD.

Elmwood, Ill., Jan. 4, 1887.

HYBRIDS AHEAD.

I began the season with 8 colonies, increased to 21, and took 945 lbs. of comb honey. My bees are mostly hybrids, and they gather almost 2 lbs. of honey to the Italians one. I have one hive of the yellowest bees I ever saw, and they gather almost nothing in the sections, although they will fill a brood-frame quicker than any other bees I have.

Stark, Mich., Dec. 15, 1886. BENJ. PASSAGE, 8-21.

FROM ONE TO FIVE, AND OVER 350 LBS. OF HONEY.

My first swarm was pure Italians, purchased July 17, 1885. They gathered enough for winter stores, and I wintered them in a chaff hive of my own make after your pattern. They came out in fine condition in the spring. This season I increas-

ed them from one to five, by dividing, and one natural swarm, which came out late in September. The surplus stores amounted to from 350 to 400 lbs., besides leaving 10 full frames of honey in the lower stories, and 8 lbs. in the upper story, all in chaff hives.

FRANK FERRIS.

Mt. Clemens, Mich.

FROM 125 TO 208, AND 13,000 LBS. OF COMB HONEY.

My report for 1886 is as follows: I began the season with 125 colonies in fair condition; increased by natural swarming to 208, and have taken in all, 13,000 lbs. of comb honey, all in 1 and 2 lb. sections. The past season has been one of the best I have known in my 14 years' experience in the business.

Cambridge, Ill.

J. V. CALDWELL, 125-208.

AN AVERAGE OF OVER 200 LBS. PER COLONY, AND BLACK BEES TOO.

I commenced bee-keeping last spring. I bought 50 swarms, one of which deserted when let out of the hive, after being taken off of the cars, leaving me 49 when the honey season opened. I commenced extracting May 29, and stopped July 6, after extracting 9839 lbs. of honey, which was mostly from white clover. I increased to 81 swarms. The average per swarm was 200½ lbs. When they went into winter quarters they had 30 lbs. apiece. My bees are all blacks. They are in quadruple chaff hives. About the first of November I moved them about a mile. I had three teams, and two extra men, besides myself and horse, and it was all that six of us could do to lift them on the wagon. We moved them in half a day. They had a good fly the 11th and 12th of this month.

Brodhead, Wis., Dec. 20, 1886. P. H. FELLOWS.

ENCOURAGING WORDS FOR ALSIKE AND BUCKWHEAT.

I commenced the season with 60 colonies, spring count; increased to 100 colonies; got 2000 lbs. of honey in one-pound sections, and 500 lbs. of extracted, about half white and half dark. I worked some bees for my neighbors. I brought home my share of the increase, 15 colonies, making me 115 colonies to winter; 50 are packed in dry sawdust in chaff hives on summer stands; 65 are in the cellar. All are heavy with natural stores. The season commenced very early, but clover did not last long, on account of dry weather. Basswood did not bloom at all.

ALSIKE.

I had 16 acres of alsike clover. Bees worked on it early and late until the drought. It makes very nice hay for all kinds of farm stock. I sowed 16 acres this year, mixed with timothy. I sowed the silverhull buckwheat so as to fill up the gaps between other bloom as much as possible. I sowed one acre in August. Bees worked on it the most I ever saw bees on buckwheat. We cut it in the afternoon, and the next morning uncle Tom Frost had killed every thing so that the bees did not work any more. We drew the buckwheat into the barn, and thrashed it, and had 25½ bushels. This was getting three crops from the same ground in one season, as we cut about two tons of hay off before we plowed it for buckwheat. We think we got as many pounds of honey as we had of buckwheat from that ground. Taking the season together, it was very poor for honey.

W. T. ROE.

Candro, N. Y.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 15, 1887.

Unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath.—MATT. 25: 29.

NEW names and renewals are coming in at a rapid rate. Thanks, friends, for your kind support.

FLAT-BOTTOMED FOUNDATION.

WE have just succeeded in making some beautiful flat-bottomed foundation send for; samples and prices. In weight, we believe it comes as near the natural foundation made by the bees as any thing we ever turned out. Mr. T. F. Bingham said he preferred the flat-bottomed foundation for sections.

CLOSED-TOP SECTIONS.

AT the Ohio Convention, when an opinion was called for, not one of the members present favored the use of closed-top sections, because it would not permit tiering up. Our readers will please take note, that this confirms the opinions expressed lately in the answers of our prominent apiarists, to the question-box department in a late issue of the *A. B. J.*

FOUL BROOD, AND FALSE ALARM IN REGARD TO IT.

ON page 10 of our last issue, friend Broers protests against a statement made in a former issue by one of our contributors, that foul brood was in the neighborhood. From a letter just received from friend McCamant, it seems the whole matter was only a hearsay. Their bees *died*, it is true, but probably from starvation, as friend B. suggests, and they *guessed* it must have been foul brood.

HAVING A SPACE BELOW THE BROOD-COMBS FOR WINTERING.

IN my remarks at the foot of friend Doolittle's article, page 976, Dec. 15, I omitted to mention that Mr. H. R. Boardman, East Townsend, O., has for years been a vehement advocate of this idea. Our readers will perhaps recollect him when I mention that I gave his portrait as "the man who winters bees without loss;" and, if I am correct, he has continued to winter his bees almost without the loss of a colony, year after year, although he counts his stocks by the hundreds.

VISITING THE HOME OF THE HONEY-BEES DURING THE BUSY SEASON.

A NUMBER at the Ohio Convention expressed to us their desire to visit, at some future date, the Home of the Honey-Bees, but that they would prefer to come and see us when we are in "full blast," and that, if they came during this time, they feared they would be unwelcome. To be sure, you would be welcome, dear friends. Come at any time; and if we are too busy to show you about ourselves, we

will see that some one does give you the proper attention. We have many visitors to our place every season, but we never have had too many.

GOING WEST.

MRS. JENNIE CULP, before leaving the convention, informed us that she would probably not be able to attend another Ohio State Convention; that she proposed selling her farm, apiary and fixtures, with a view of going west with her boys. She stated, that, after selling, she probably would not do much with bees. As the work in the apiary has now gone beyond her strength, and as she is not obliged to work for a living, she has so decided. It is with some degree of regret that we give this intelligence to the friends; but we hope that, when she is located in her new field, we may again hear from her through the columns of *GLEANINGS*.

MANUFACTURING COMB HONEY.

THE people who stick to the falsehood about manufactured comb honey have finally found a place in Chicago where a man could be seen sealing up the combs with a hot iron. They never saw him making the *combs* out of paraffine, but he was simply sealing them up. Our enterprising friends of the *A. B. J.*, when notified, made haste to see the sight. What do you suppose they found? A Chinaman near a window, ironing collars and cuffs with a flat-iron! Did you ever? Ernest suggests that I have forgotten to state that the innocent-looking laundryman had a cake of *beeswax* by his side, with which to polish his flat-iron.

SENDING DELEGATES TO THE OHIO STATE BEE-KEEPERS' CONVENTION.

A MOTION was carried at the Ohio State Convention, mentioned in another column, that we invite, through the columns of *GLEANINGS*, the county and district bee-keepers' conventions to appoint and send delegates to the State Convention to be held at Columbus, about a year from date. The object of this is to put the county and district associations into direct communication with the State association. We therefore earnestly request that the secretaries will see that this matter is brought properly before their respective bodies, and that the members may act upon it. We give you notice thus early, that all arrangements may be completed in time.

BEE-KEEPERS' PRICE LISTS.

OUR facilities for turning out first-class price lists and general job work were never more complete than now. If you have anything in this line, write us for prices and samples. Remember, we have a very large stock of wood cuts, especially for price-list work. The following have been printed at this office: A 22-page price list, apiarian implements and bees and queens, for P. L. Viallon, Bayou Goula, La.; a 4-page large-size list of bee-keepers' supplies for J. D. Rusk, Milwaukee, Oregon. The following have been sent to this office:

The first comes from C. M. Goodspeed, Thorn Hill, Onondaga Co., N. Y., Specialty, the leading papers and magazines; also Italian bees and queens' raspberry and strawberry plants, al-sike clover, poultry, etc.

A very neat 36-page circular has been sent us by James Heddon, giving nice drawings of his new shallow hive, and much important and valuable matter on various subjects. He also offers honey in attractive packages at very low prices.

A 34-page circular comes to hand from C. F. Muth & Son, Specialties, honey and apiarian supplies.

From E. T. Flanigan, Belleville, Ill., an 8-page list of bees, hives, fdn., small fruit, etc.

From G. W. Stanley, Wyoming, N. Y., a 12-page list.

SPECIAL NOTICES.

DISCOUNTS UNTIL FEBRUARY 1.

REMEMBER, we allow 4 per cent discount on all purchases of whatever nature, made between now and the first of February.

SIMPLICITY HIVES.

WE have been making some changes in our table of prices; and while it does not affect the price of a complete hive, we have been compelled to advance the price of bodies only, without rims or covers. Our boys have just made the discovery that we have been selling bodies only, for less than cost.

MAPLE SYRUP.

In view of the crop soon to come, we offer the remainder of the lot mentioned on page 1002, Dec. 15 issue, at 80 cts. per gallon, or 90 cts. with package included to ship it in. The new crop will be in market probably about March 1.

COPPER BATH-TUBS.

WE have found the manufacturers of the copper bath-tubs, referred to on page 884, GLEANINGS for Dec. 1, and are prepared to furnish a tub of 10-oz. copper, 5, 5½, or 6 ft. long, at an even \$12.00, f. o. b. in New York. The regular price is \$13.75. They are made in a neat wooden box, ready for use, and they can be set in the corner of your bath-room. They are furnished with a brass plug in the bottom, to let the water off.

THE ABBOTT HONEY-KNIFE.

We have just had a very pleasant visit from Mr. T. F. Bingham himself, resulting in an arrangement (paying him a royalty) in regard to the honey-knife, whereby we can sell them as we proposed, and have it satisfactory to all parties. We are satisfied, after having carefully examined the steel in friend Bingham's honey-knife, and in friend Abbott's foreign copy of it, that the Bingham honey-knife is greatly superior in the quality of steel. The Abbott knife, however, is a very good one for the money.

REDUCTION IN THE PRICE OF HONEY-EXTRACTORS.

In view of the close prices on almost all staples, we have reduced the price of our Langstroth honey-extractors to \$6.00 instead of \$7.00; and all sizes from No. 1 to No. 5 will be \$6.00. All numbers above 5 have been correspondingly reduced. Send for new price list. We have also made an important reduction in circular-saw mandrels. Our \$10.00 mandrel for holding a gang of 9 saws is now reduced to \$7.50; the \$6.50 mandrel to \$5.00; the \$4.00 mandrel to \$3.50; and the \$2.50 mandrel to \$2.25. Our mandrels were never better made than now, and are the same we are using every day in our wood-working department.

PERFORATED ZINC TO DEALERS.

As perforated zinc is proving itself a necessity to the best results in securing large crops of honey, and as the perforations in the zinc of our make are just right, according to the opinion of the Michigan Bee Convention, we have determined to offer dealers who advertise our zinc in their catalogues, a special discount. Our prices are as follows: 1 sheet, 28×96 in. (18½ sq. ft.), \$1.50; 2 or more sheets, 5 per cent off; 10 or more sheets, 10 per cent off; less than a sheet, 10 cts. per sq. ft. Ten honey-boards, 14×19½ for Simplicity or chaff hive, \$1.50; 100 or more, 10 per cent off; less than 10, 16 cts. each. These honey-boards have a margin of unperforated zinc all round, and have proven easier to remove from the hive than those with a tin binding. Zinc strips, ¾ in. wide and 18 or 19½ in. long, with one row of holes, to be used in the slatted wood-and-zinc honey-board, \$1.00 per 100; 1000 or more, 10 per cent off. To dealers who advertise our zinc we will give a discount of 25 per cent, the same as we do on extractors and metal corners. Write for prices on odd sizes of honey-boards. For 14 in. and under in width, and 19½ in. and under in length, in lots of 20 or more, the price will be the same as the regular boards; but over those measurements the price will be much higher, on account of waste.

HIVES IN THE FLAT.

WE have revised our prices of Simplicity and Portico hives in the flat. There is little if any change in the prices of hives taken as a whole; but where bodies or covers are taken alone there is a marked change. We have also given prominence to "Ten crates," as we call them, in the hope that you will save yourself and us much trouble by ordering regular packages instead of an odd number of hives. We have these regular packages all put up ahead; and when you send us an order we can very often get it off with more dispatch if you order regular packages than if you order odd numbers of hives. Please read the following on page 18 of our price list, instead of the tables of prices of hives in the flat given there. The cuts referred to in the following, you will find on pages 17 and 18 of our price list. If you have lost or mislaid your price list, drop us a postal and we will send you another.

SIMPLICITY HIVES IN THE FLAT (KNOCKED DOWN).

Also Portico Hives and a combination of the two.

See cuts on this and the preceding page. Hives in the flat consist of the material all shaped, ready to nail together. These include metal rabbets for the frames to rest on, but nothing else—no frames, sections, or inside furniture of any kind included at these prices. For brood-frames, see page 14. For sections and wide frames for holding the same, see page 25; comb fdn., page 8, and enamel-cloth sheets, page 10.

The Simp. hives are packed in what we call "Ten crates;" i. e., 10 Simp. bodies, 5 covers, and 5 bottoms, are packed in a crate. This makes five 2-story Simp. hives; but the bottoms and covers are made just alike, and interchangeable, except that the cover is a better board than the bottom, or has a sheet of tin on it to prevent its leaking. Thus you can use the bottoms for covers, making 10 one-story hives by supplying home-made bottoms.

The bottom is used the same side up as the cover, and stands on four half-bricks. The entrance is made by sliding the hive forward a little on the bottom-board. The alighting-board shown on page 3 is a valuable addition. With it the entrance can be contracted or enlarged as necessity demands, in different seasons of the year. Some prefer to make their own bottoms, and want 10 all good covers in their "Ten crates," and no bottoms. Others, again, prefer the ½-story cover shown on the Portico hive on this page.

Again, there are people that will have a hive with the old-fashioned Langstroth portico, and a permanent bottom-board, which the Simplicity hive has not. There are some very good reasons for such a preference, where hives are to be moved much; as into the cellar and out, or when they are to be shipped and sold. For these reasons and others, we make and keep in stock the Portico hive shown above. Some want the Portico hive for the lower story and a Simp. upper story with flat cover, like the one shown above. Others want ½-depth bodies for tiering up. Others, still, want their hives made of better lumber than that we ordinarily use, which is No. 2 stock boards. We desire to meet all these wants; and as a help to you as well as ourselves, we have devised the following table, giving the price of each piece in lots of 10.

Ten bodies must be taken to get the 10-rate, but 5 covers and 5 bottoms entitle you to 10-rate on each. You may order any combination that suits your taste and purpose, calling the articles wanted by the names given in SMALL CAPS, and giving the price.

TABLE OF PRICES.

Those who order less than 10 must add one-fifth to these prices to pay the extra expense of packing.

	Price of 10 in flat.
SIMPLICITY BOTTOM-BOARDS	\$1 00
" " WITH ALIGHTING-BOARD	1 50
SIMPLICITY COVERS	2 00
½-STORY COVERS	2 50
½-DEPTH BODIES	2 00
SIMP. BODY, NO. 2 STOCK BOARDS	3 00
" " " " " "	4 00
PORTICO HIVES, with permanent bottom, no cover	4 00
" " " " " "	3 50
TEN CRATE NO. 1, contains 10 Simp. bodies, 5 Simp. bottoms, and 5 Simp. covers, making five 2-story hives, in flat	\$4 50
TEN CRATE NO. 2, contains 10 Simp. bodies and 10 Simp. covers, no bottoms. Price of crate	5 00
TEN CRATE NO. 3, contains 10 Simp. bodies and 10 ½-story covers, no bottoms. Price of crate	5 50
TEN CRATE NO. 4, contains 10 Portico hives, with permanent bottom-board and ten ½-story covers	6 50
By combining ten crate No. 2 and 10 Portico hives, no covers, at \$4.00, you get ten Portico hives with Simp. upper story	9 00

We can make any other combination you desire, in the same way, because all are made interchangeable.

For 2 ten crates deduct 2 per ct.	For 8 ten crates deduct 6 per ct.
" 3 " " " 3 " "	" 10 " " " 7 " "
" 4 " " " 4 " "	" 20 " " " 8 " "
" 5 " " " 5 " "	" 50 " " " 9 " "

For 100 ten crates you may deduct 10 per cent.

Please order in regular pkgs. of 10 for even if you don't need the extra ones at the time, you soon will.

COVERS.

There are some very great advantages in having a cover flat on top, and plain and simple, made of a single board, like the Simplicity cover. It can be used interchangeably as a bottom-board; it permits the hives to be piled up like square boxes of merchandise; they can be shipped at less rates, because there are no projections and corners to be knocked off, etc. The disadvantages are that it is too shallow for wintering, without an upper story, or for a tier of surplus boxes; it gives little or no chance for ventilation; it can not be raised with one hand easily. As one cover can not well please everybody, and combine all these advantages, we furnish the one shown above. This cover is made with the thin roof-boards screwed against the under side of the ridge-board, and the holes thus left in the gable ends are covered with wire cloth, and serve as ventilators. It is of sufficient depth to cover a crate of 28 1-b. section boxes, or a good-sized chaff cushion for wintering, and can easily be raised with one hand by the ridge-board, because, except this ridge-board, it is all made of $\frac{1}{2}$ -inch stuff.

CHEAP! CHEAPER! CHEAPEST! BEE-HIVES

ONE-PIECE SECTIONS, CRATES, SHIPPING - CASES, FDN., EXTRACTORS, UNCAPPING-KNIVES, BEE-FEEDERS, WIRE NAILS, AND METAL CORNERS.

Please send your Orders Early Before the Rush Comes.

24-24d **B. J. MILLER & CO.,**
Send for Price List. **Nappanee, Ind.**

FREE. A Niagara vine free to all who purchase vines to the amt of \$2.00, up to March 1st. Catalogue of grapevines free.

24-1-2-3-4d **L. L. ESENHOWER & CO.,** Reading, Pa.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing **SUPPLIES** elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary.

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

APIARIAN SUPPLIES

MANUFACTURED BY

W. T. FALCONER, - JAMESTOWN, N. Y.,

Are unsurpassed for **QUALITY** and fine **WORKMANSHIP**. A specialty made of all styles of the **SIMPLICITY HIVE**. The "**FALCON**" **CHAFF HIVE** with Movable Upper Story Continues to Receive the Highest Recommendations as Regards its Superior Advantages for Wintering and Handling Bees at all Seasons. Also manufacturer of

"FALCON" BRAND FOUNDATION.

Will pay highest price offered in *Gleanings* from month to month for *Beeswear* delivered at depot here.

DEALER IN A FULL LINE OF BEE-KEEPERS' SUPPLIES.

Four per cent discount in January.

SEND FOR ILLUSTRATED CATALOGUE FOR 1887 FREE.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretzmer, Coburg, Iowa; P. L. Vialon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., G. B. Lewis & Co., Watertown, Wis., and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

IT PAYS TO ORDER GOODS EARLY.

Send in your name and get our new catalogue of **HIVES, SMOKERS, SECTIONS, COMB FOUNDATION, &c.**, and see our discounts on goods for January, 1887. I tell you, it pays to order early. Address
24-1-2-3d **R. B. LEAHY, Higginsville, Mo.**

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
— FOR PRICES ON —

BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
24-11db

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tdb ANTHONY OPP, Helena, Phillips Co., Ark.

I HAVE about 5 lbs. of spider-plant seed. I will exchange the same for different kinds of flower-seed or plants of any sort that are useful and ornamental.
J. W. ROSS,
23-24-1-2d Phair, Brazoria Co., Texas.

WANTED.—A foundation-mill, or offers, for a first-class incubator—been used three seasons.
23tdfb D. S. HALL, So. Cabot, Vt.

WANTED.—To exchange nursery stock of all kinds (evergreens a specialty) for pure Italian bees, queens, 2 or 3 frame nuclei, fdn., apiary supplies of all kinds, seedling basswood-trees, a trio of White Leghorn fowls, alsike clover seed. When making inquiries, please give price of your goods. My price list free on application.
R. A. LEWIS,
Cherokee, Iowa.

WANTED to exchange or sell, a Given fdn. press, 3 tanks, and ½ doz. dipping-boards.
1tdfb J. SWALLOW, 2816 Mo. Ave., St. Louis, Mo.

WANTED to exchange, S. B. Leghorns and S. S. Hamburg cocks for comb foundation.
1-2d L. C. CALVERT, Poplar Flat, Lewis Co., Ky.

WANTED.—To exchange a "Big Giant" Chopper, nearly new, for bees or apiarian supplies, a foundation mill, or an incubator, or any full-blooded stock of any kind.
JOHN KERR, 2d
Greensburg, Westmoreland Co., Pa.

WANTED.—To exchange McLoughlin type-writer, almost new, for a good wax-extractor, or offers.
W. S. POWDER,
2d Groesbeck, Ohio.

WANTED.—Barnes scroll and circular saw; a honey-extractor, or offers, for a Challenge or an American incubator. Both in good condition (200 eggs), and used but one season. We shall hereafter use a larger one. Illinois, Indiana, Pennsylvania, or Ohio exchanges preferred. Address
2d J. J. FULTZ, Mt. Vernon, Ohio.

WANTED.—To exchange a good Excelsior extractor, uncapping-can, honey-knife, a lot of Simplicity hives, brood-frames, etc., for comb honey at 5c per lb., delivered here. Address
2d A. M. MORRILL, Box 473, Ft. Scott, Kansas.

WANTED.—To exchange for a self-inking printing-press (not less than 10×12-inch chase), or offers, one German-silver B-flat cornet, used but little, one novelty printing-press, 6½ x 10 inch, and a lot of Simplicity bee-hives. Address
2-3d CYRUS MCQUEEN, Baltic, Ohio.

WANTED.—To exchange chaff hives or surplus crates for bees next spring. Illustrated price list on application.
GEO. E. HILTON,
2-3-4-5-6d Fremont, Mich.

WANTED.—To exchange a double-barrel breech-loading shotgun, cost \$55.00, used two years, for a Barnes foot-power saw. Must be in good order as new.
C. E. PRICE,
2d Smithtown Branch, Suffolk Co., N. Y.

WANTED.—To exchange one farm wagon, new and complete, made by the Harrison Wagon-Works, Grand Rapids, Mich., for bees. Address
2-3-4d JOHN CADWALLADER, North Indianapolis, Ind.

WANTED.—To exchange pure Italian bees for supplies or chaff hives in flat. Make offers. For particulars, address
S. F. REED,
2- tfd N. Dorchester, N. H.

WANTED.—To exchange for queens in July or Aug., 60 two-qt. and 30 one-qt. raised-top tin pails.
C. B. THWING, Evanston, Ill. 2d

ALSIKE seed for 30 days, at \$6.50 per bushel, pure and clean. C. M. Goodspeed, Thorn Hill, N. Y.

HEDDON'S

1887

CIRCULAR

NOW READY.

ADDRESS JAMES HEDDON,
DOWAGIAC, MICH.

1d

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22tdfb

A. F. Stauffer & Co., Sterling, Ill.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

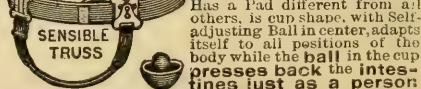
Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.

4-3db

ON 30 DAYS' TRIAL.

THIS NEW
ELASTIC TRUSS



Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. EGLESTON TRUSS CO., Chicago, Ill.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
See advertisement in another column. 3tdfb

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FEB. 1, 1887.

No. 3.

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DR. MILLER'S "T" SUPER, AND ITS USE.

DISCUSSED BY TWO OF OUR LARGE HONEY-PRODUCERS.

MR. EDITOR:—I inclose herewith a letter from one of the veterans, M. M. Baldridge. I think so interesting a letter should be given to the fraternity at large, and for their benefit I will also append my reply.

C. C. MILLER.

FRIEND MILLER:—The "spirit" moves me to write you a few lines about your "Year Among the Bees." I have read the book through recently, and some parts of it two or more times. Many things you say interest me exceedingly; and let me say here, but not by way of flattery, that you have written a very good work on bees. I have also read with especial interest what you say about the **T** super. I have made them since 1883, but not exactly as described by you. I use no iron pieces nor loose **T** tins. I simply saw through each side-piece 3 times, and then insert the wide edge of the tins, and drive two $\frac{1}{2}$ wire nails through both sides of each end. This holds the tins in place at all times. But you have the upright edge of tins only $\frac{1}{4}$ inch deep, and find $\frac{1}{2}$ too deep, as it holds the separator too high. I have not used the super enough to know how that is; but others tell me that the separator needs to be only $2\frac{1}{4}$ inches wide, when of tin, for the $4\frac{1}{4}$ -inch section; that is, a sheet of tin, 14 by 20, will make 5 separators, quite wide enough for the pound section; therefore for the nailed section I get the tins out 1 inch wide, and have the upright part $\frac{3}{4}$ inch high, as the top and bottom pieces of the section are $\frac{3}{4}$ inch thick. This gives an open space of $\frac{1}{2}$ inch at both top and bottom.

I also notice, that, with the **T** super, you prefer wood separators to any other material. Now, I wish you to tell me where you get the wood separators you use; what is their exact width, also thickness, for 16 sections, and what do they cost per 1000?

THE WIDTH OF SECTIONS.

I see also that you prefer two widths for sections.

I rather think I should prefer one width ($1\frac{1}{4}$ inch), and use separators between all, as I have no trouble to make bees go to work in them *at will* when in right condition. I like the *slatted* honey-board very much. I can, however, keep the queen, or brood and bee-bread, out of the sections, even when none is used. But how to do it is the "secret," and is known only to a few.

REPORT.

I have been up in Wisconsin the past season, keeping bees on shares, and returned only a few weeks ago. I had 178 hives in May to begin with—150 good ones, but the rest were weak. I closed the season with 230 good ones and 11,000 lbs. of honey—8,000 lbs. being in the comb, in Muth's sections, holding $1\frac{1}{2}$ lbs. each. These $1\frac{1}{2}$ -lb. sections were on hand when I went up there, in May last, and so I used them; but hereafter I shall use nothing but 1-lb. sections. Our hives in Wisconsin had 3 boxes each, holding 10 sections each, with no honey-board. We took 10 full boxes from some hives, and should have taken 15 to 20 thousand pounds of comb honey from all, if I had found things there as represented.

THE VALUE OF ALSIKE.

I had a deal of honey from alsike. The present owners of the bees sowed 90 acres of alsike, in September, by my directions, and I rather think they will have "lots" of honey next year. Alsike is the best honey-plant, all things considered, I know of; and when folks learn how to raise it properly they will quit fooling with other plants. Marvin has a "heap" of alsike growing a few miles west of this city, all secured by following my directions. There should be a thousand acres—yes, 10,000 acres—of it in the U. S. where there is but *one* now. I saw Marvin a few days ago. He says he would have had but little honey this year had it not been for alsike.

By the by, as you must have seen Betsinger's wire-cloth separators at Indianapolis, what do you think of the idea, when expense and all things are duly considered? Why would it it not be a good idea to have one-fourth-inch holes made through the wood separators, the same as open bottoms for

chairs? Still, this may be of little consequence, as I can force all the honey up stairs *at will*, anyway. With the Muth box it would be too much bother to use separators; still, I think it will pay me to use them hereafter. Again, I have by no means given up the idea that moving bees in car lots from South to North, in the spring, and back again in the fall, is a paying project; nor shall I abandon the idea until the matter has been properly tried. No one has ever yet tried the plan *properly*. I have now 150 hives at Yazoo City, Miss., which I intend to have filled with bees next spring. In May I shall move them up here somewhere for the white-honey crop. The latter part of July I shall take them to Wisconsin, where there is plenty to do on buckwheat and goldenrod during August and September. By this means I should secure 3 good honey crops in one season. What I shall do with the bees at the close of the season in October I do not know yet.

My hives at Yazoo City have two stories, with 10 frames in each—only 7 inches deep inside of frames. When ready for box honey I use but one set of frames, and use the top sets for new swarms or extracting. The hives were got up expressly for shipping bees from South to North and back again each year, so you see I have had plenty of faith in the project, and still have. The cost of getting a car-load of bees from Yazoo City or New Orleans to Chicago is about \$100; and as 200 stocks in 7-inch hives can be safely brought up in one car, the cost, you see, is only 50 cts. per colony, or \$1.00 both ways, there being no danger of any loss down South during winter; and the bees being able to double their number of colonies, or to gather a good crop of honey before May, I can see no good reason why they should not, while South, pay the entire expense of shipping both ways.

George Grimm has left our ranks. He writes me that the bee-business does not pay well enough to suit him, and is practicing law, having a good business. I am told that he was elected to the Legislature this month. M. M. BALDRIDGE.

St. Charles, Ills., Nov. 22, 1886.

DR. MILLER'S REPLY TO MR. BALDRIDGE.

Your plan of making 1 supers has advantages and disadvantages. It is no more work than my way, possibly less; it has the convenience of having the tins always in the right place in the supers, without the trouble of placing them every time and having them slip out of place, sometimes when putting sections in the super. The loose tins on the other hand, as I use them, admit of taking out the whole super full of sections *en masse*, and I can hardly imagine any way by which the sections can so easily be taken out with the fixed tins. Moreover, in putting the sections in the supers with loose tins, the tins adjust themselves to their places; and when the whole super is filled, the tins can not fail to be in exactly the right place. If the tins are fixed, it will require very exact workmanship to make the spaces between the tins exactly the same in every case.

You say, "Others tell me that the separator needs to be only 2½ inches wide, when of tin, for the 4½-inch section." I hardly believe it can make any difference as to width, whether the separator be of wood or of tin. In actual practice, I have found exactly the same difficulty with each, when too narrow. Whoever found 2½ inches sufficient, can hardly have a very extended experience, or else must have had such careful management that separators might have been dispensed with altogether. Now, we know that some succeed quite well without separators; and in case where two sections are built perfectly true without a separator between them, I think the intervention of a separator would make no difference, whether 2 or 4 inches wide. What I want a separator for is to force the bees, under any and all circumstances, to build the combs in sections so true that there will not be the least difficulty in packing. With the separator coming within ½ inch of the top or bottom of the section, this is accom-

plished; but an eighth of an inch more than this gives different results. You see, that ½ inch difference makes just one-third more open space than if ⅓ inch is allowed, for the wood of the section occupies ⅓ inch, leaving ⅔-inch open space. When this ⅔-inch open space is allowed, you can count on an unpleasant number of sections being built so as to project under the separator wherever a section has progressed much in advance of its neighbor, or in any case when work is going on very slowly. If the little projection were all, it would be a matter of less consequence; but this projection is pretty sure to be attached to the separator, and, when detached, the section "bleeds," and this has occurred with me, equally with wood or tin. So, for the 4½×4½ sections I want 3½-inch separators, so placed as to make the space alike at top and bottom. Wood separators of this width I get of poplar wood from the Berlin Fruit-Box Co.

I think, if you look again, you will not find that I prefer two widths for sections. On page 42 I say, "I have used a mixed arrangement with some degree of satisfaction," but I have more satisfaction in using only one kind.

I do not use the slatted honey-board to keep the queen out of sections, as I had no trouble in that direction before I used the slatted honey-board. Its great value is in preventing the bees from building bridges of comb between the brood-frames and the sections.

I believe alsike to be a valuable plant; but I have quit fooling with it, because I have found too great difficulty in getting a good stand. Probably better knowledge on my part would secure better results. It is open to the objection, that, with ordinary treatment, it blooms at the same time as white clover. Still, I am glad to see that some of the farmers about me are beginning to "fool" with it, and I shall be glad if they are more successful with it than I have been.

Without having tried them, the Betsinger separators strike me as a good thing, if not too expensive. I do not know what it costs to get them up. If the material is not so expensive as to prohibit their use, by manufacturing in large quantities he could make them so as to sell for less than any one else could get them up in small quantities, and still make a nice sum.

Your South-and-North project will be looked upon with much interest; and if you make a success of it I think you may claim to be the pioneer among the successful ones, for I take it that others will follow if you succeed. C. C. MILLER.

Marengo, Ill.

In regard to the width of separators, I think I am prepared to say, from actual experiment, that 2½ inches will not answer for the Simplicity section. As 14 inches is the common width of tin plates, we are in the habit of dividing this 14 inches into 4 parts, giving a separator 3½ inches in width. Now, it is possible that something a little narrower would be safe, and it may be well to go over this matter again, especially if we are going to use the exceedingly expensive material, wire cloth. Friend Betsinger said, at the Albany Convention, that 8 cents per square foot was as low as it could be furnished; and, if I am correct, he charges the same, whether a large or small quantity is used. The same kind of wire cloth has been in our price list for some time, for use in

carp ponds, drying fruit, etc.; and we find the price he has fixed is about as low as it can be figured. It is possible, however, that, if the manufacturers could be given a very large order, to be worked at their leisure, a little better figure might be obtained. We will ascertain in regard to the matter.

THE OHIO STATE BEE-KEEPERS' ASSOCIATION.

HELD AT COLUMBUS, O., JAN. 11, 12, 13, 1887.

THE meeting was a very interesting one, considering the small attendance, which was owing to the neglect of one of the officers in not giving proper announcement beforehand.

FIRST DAY.

On account of the small number present, an informal meeting was held.

SECOND DAY—MORNING SESSION.

Convention called to order with Dr. H. Besse in the chair. Minutes of previous meeting were read and approved. Treasurer's report received. The election of officers, being next in order, resulted as follows: Pres., Ernest R. Root, of Medina, Medina Co.; Sec. and Treas., Frank A. Eaton, of Bluffton, Allen Co. Other matters of business having been disposed of, by request of the association Pres. Root gave a talk on foul brood as it appeared in the "Home of the Honey-Bees." In brief, the address was as follows: The disease first broke out about the first of last July. He was not certain as to how it originated, but thought it was started by robber bees gaining access to a few kegs of honey which had been purchased some time before. The incipency of the disease was difficult to describe. A few affected cells appear in its early stages, and the larvae have a light coffee color; as the disease advances, the larva changes to a darker coffee color, like the coffee-berry, and finally dries up in one side of the cell. If a toothpick be inserted into an affected cell in its first stages, the diseased matter will adhere, forming a sort of string. The speaker stated, that during the past season they had had sixty cases. Each, as soon as discovered, was treated as follows: All the combs of the affected hives, after the bees were shaken off into a clean new hive, were consigned to the boiler-furnace. He thought it cheaper to give the bees a set of new clean frames filled with foundation, than to extract the old diseased combs, render out the wax, and boil the frames for use again. The diseased hives were then scalded out with steam. He was not sure but that the disease might appear again the coming year, but in no colonies so treated did the disease reappear.

After the speaker closed, Dr. Besse said he did not think it necessary to go to the great waste or expense of burning up the frames, combs, and honey. Why not extract the honey, render the wax, and boil the frames, and in that way save that which would otherwise be wasted?

Pres. Root thought there would be a good deal of risk attending such a practice—that robbers might gain access to the diseased honey and wax, while so working.

In this connection the advisability of purchasing honey to feed, instead of sugar, was opened for discussion. It was argued, that, as the former

might contain the germs of foul brood, it were better to feed sugar.

Mr. Goodrich.—Feed your own honey that you know is all right.

Secretary.—Suppose you haven't any honey to feed?

Dr. Besse.—Purchase your honey, and boil it. If 212° will kill the germs, I can see no danger.

Mr. Cole.—I think the practice of buying sugar to feed, is damaging to our trade. When people see you buying sugar they won't believe but that you intend putting it upon the market again in the form of honey.

After further discussion, in which the members of the convention were divided in their opinions, the convention adjourned till 1 P. M.

AFTERNOON SESSION.

The convention was called to order, with Pres. Root in the chair. A list of questions was handed in by S. R. Morris, and discussed in the following order:

1. How should a house be constructed to keep honey best, both in winter and summer?

Dr. Besse.—I keep it best in a dry house that does not reach either extreme of hot or cold.

Secretary.—Keep it in a honey-house that gets quite warm in summer and fall, then remove to some room in the house where the temperature does not go down to freezing.

E. Cole.—Do not keep it—sell it.

2. Is comb honey injured or made unsalable by freezing?

After some discussion it was generally agreed that the quality was not injured by freezing, but the combs are cracked by freezing, and thawing would cause the honey to drip.

3. Which is the best mode to control or prevent swarming?

J. W. Newlove.—I use single-tier crates, and give the bees plenty of room by tiering up. Put a crate upon the hive about ten days before the honey-flow starts. When the bees are thoroughly at work, and have filled the sections about half, raise the crate and put under it an empty one, and so on, giving plenty of room. I recommend this plan to my customers who are farmers. I find by this plan that bees seldom swarm.

Secretary.—It is an easy matter to control swarming when running for extracted honey, as a liberal use of the extractor will greatly control; but the difficulty comes in when working for comb honey. I have practiced, very successfully, extracting from the side combs in brood-chamber, placing them in the center. If the colony is very populous, remove one comb, placing an empty frame with but a starter in the center, thereby giving the queen plenty of room, at the same time putting on one tier of sections, then tiering up as fast as the honey-flow will warrant.

4. Will the drone progeny of an Italian queen be pure Italian, provided she mated with a hybrid drone?

No one present had any occasion to doubt the well-founded principles of Dzierzon and other writers on this subject.

5. Which is most profitable—to give a new swarm full frames of foundation, or only starters?

Dr. Besse.—I use starters only.

Pres. Root gave W. Z. Hutchinson's plan.

J. G. Ricketts said that Mrs. Jennie Culp used full sheets, and much preferred them.

MORNING SESSION—THIRD DAY.

After the convention was called to order by the President, C. E. Jones gave a very interesting address on the production of fine comb honey. His address was, in brief as follows: I do not want a colony too strong with bees. I prefer 6 or 7 frames only. Don't put the sections on too early; wait until white clover is fairly started; give starters only, in sections, placing the sections the same way as the frames. I recommend removing the sections early. I do not aim to secure the most honey, but the best looking and most salable.

N. Hutches.—Does it pay to feed back partly filled sections, to finish others with?

It was not considered profitable.

Pres. Root gave a detailed description of the Heddon hive, its management, and its good and bad features. There was considerable discussion on the same, the majority not favoring it.

Mrs. Culp expressed herself somewhat as follows: I do not think it profitable to change an apiary of 40 or 60 colonies for any new improvements in hives, discarding old ones.

To show what could be done with the old L. hives and fixtures, she gave an interesting account of her management of an apiary, how she handled an apiary of 40 colonies without help. She uses a modification of the L. hive, and keeps her queens' wings clipped. Her report for the past season was 5600 lbs. of comb honey, for which she received 18 cts. per lb.; 2400 lbs. of extracted, at 15 cts. Her bees are hybrids. She prefers them for honey to any others.

AFTERNOON SESSION.

After the convention was called to order, the subject of honey adulteration was opened for discussion.

Mrs. Nathan Hutches.—A young man of polished manners—a college graduate, as he said—informed me that he had seen, in the city of New York, comb honey manufactured; that he had seen them make the comb, fill it with the abominable stuff, and cap it over with thin wax by means of a "rocking concern."

President.—Didn't the fellow see them fastening foundation into wired frames with a foundation-faster?

Mr. Hutches.—No, sir. He appeared to be a straightforward sort of fellow. He said he had no object one way or the other in stating these facts. Mr. Earle Clickinger heard the same story.

When the latter gentleman, a honey commission-merchant, was called upon, he verified what the previous speaker had said. He stated that he believed that the young man who had given these facts was still in the city. Upon motion of the convention, Mr. Hutches was instructed to call upon the fellow at his place of business, bring him to the convention rooms, and let him tell his story. After a lapse of a short time, Mr. H. returned and reported to the convention that the college fellow had "gone west." The convention then instructed Mr. H., that, if he ever saw the polished young man again, to inform him of A. I. Root's offer of \$1000 to any one who should prove that comb honey could be manufactured.

C. E. Jones.—I think that comb honey is often taken for adulterated when it is made of honey-dew, or some kind not usually gathered.

After further discussing this matter, the following question was propounded: Does the queen determine the sex of her progeny at will?

Mr. Miller.—I have been taught, that the sex of

the bee is determined by compression, owing to the size of the cell.

C. E. Jones.—I think she has the free power of determining the sex.

Secretary.—I have seen the queen lay eggs in queen-cells only slightly started; also in foundation that was not drawn out more than $\frac{1}{8}$ of an inch. How does the compression theory account for this?

Mr. J. L. Mock gave a new use of wide frames for division-boards. Nail thin boards on each side, filling the space with dry sawdust, forest-leaves, or some light material. They are good for winter or summer use.

As many were desirous of getting off on the afternoon train, the convention proceeded to matters of business. It was moved and seconded that a committee of one be appointed to prepare a question-box for next meeting. The chair appointed S. R. Morris. The committee on exhibits reported as follows: Frank A. Eaton, section case and skeleton honey-board combined, adapted to the tiering-up system, and removing sections with ease. Mr. Earl Clickinger exhibited a section crate, a case of fine comb honey; jars of extracted honey; Bingham smoker and honey-knife and Eaton feeder. J. W. Newlove, combined shipping and honey crate; also well adapted for tiering up.

Bluffton, Ohio.

FRANK A. EATON, Sec.

HONEY EXHIBITS AT FAIRS.

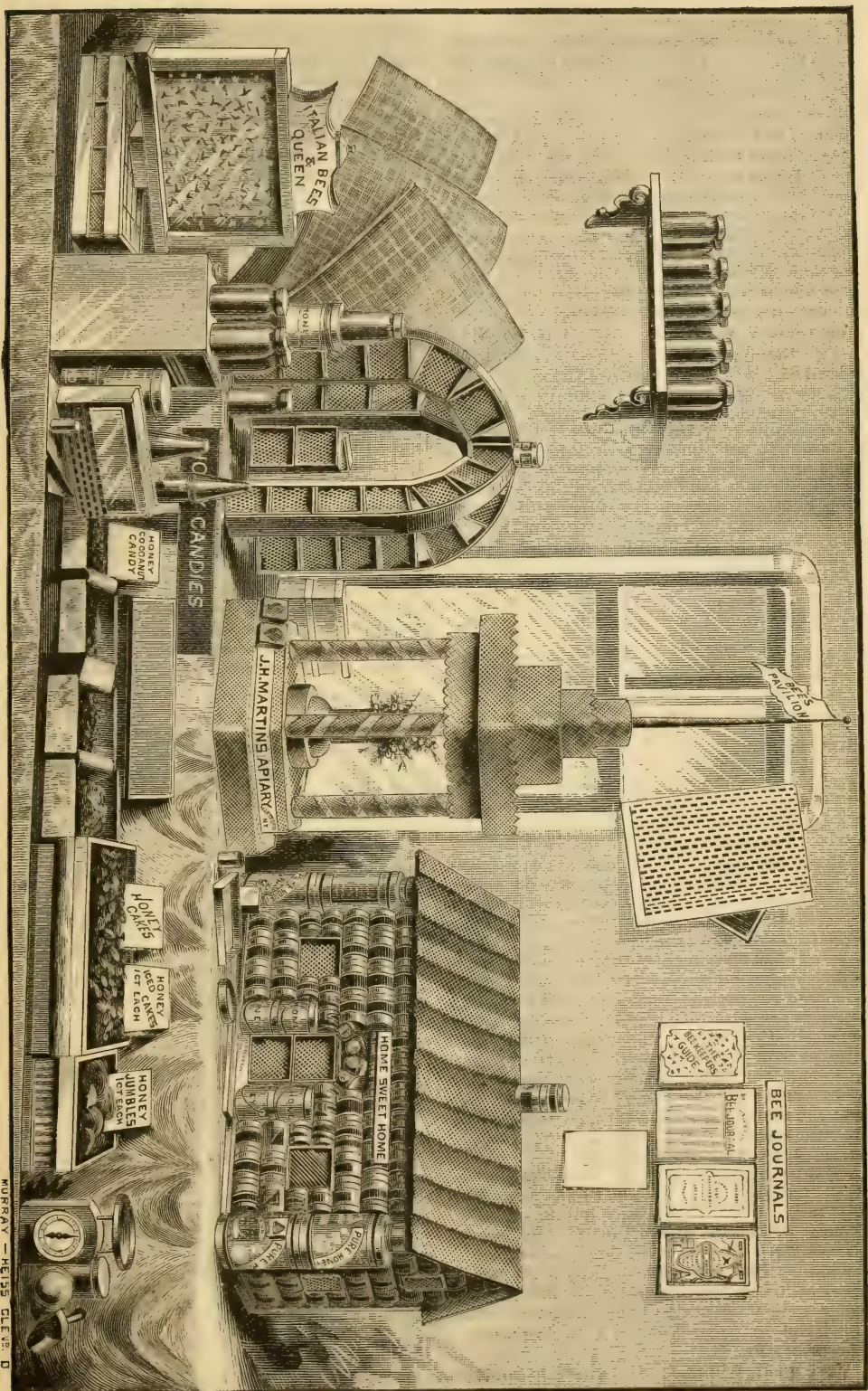
THE ADVANTAGES OF ADVERTISING IT THAT WAY.

KNOWING that you like to see novel things in bee culture, I herewith send you a photo of my exhibit at our county fair. The boxes in front show for themselves what they are—honey-cakes and Todd's honey-candies, with an observatory hive on the left. On the right is a log cabin, made entirely of different styles of honey cans and pails, with sections of comb honey for windows and doors. The roof is covered with strips of foundation, and the appropriate name of "Home, Sweet Home," over the door.

The next structure bears upon the banner the title, "Beeswax Pavilion," after the Grecian models. This is a hexagonal framework of wood, covered entirely with foundation. The narrow spirals upon the columns are of colored wax, one column covered with green spiral, the next with red; the bands of foundation around the upper part were also of different colors, all surmounted with a flag-staff and a banner. In the center of the pavilion was a small pyramid of beeswax surmounted with a bouquet of wax flowers.

The next object is an exhibit of comb honey, in the form of a double arch, each section glassed. In the center was also a pile of comb honey. This double arch was finished out with a fine bouquet of natural flowers, scarcely discernible in the picture. On the left of the comb honey is a pyramid of extracted honey in tin and glass cans.

This exhibit attracted a great deal of attention, and called forth expressions of "Isn't it beautiful?" from scores, and I was kept quite busy answering questions, and giving information generally. This exhibit was shown at three county fairs—Warren, Saratoga, and Washington. At Ballston, Saratoga Co., we had a fine display. Mr. Tarent



HONEY-EXHIBIT AT THE FAIR, OF J. H. MARTIN, HARTFORD, N. Y.

was upon my right with four observatory hives, and a quantity of honey and implements. Mr. Smith was on my left, with three observatory hives, also honey, etc. Such displays, with the distribution of circulars and cards, and sale of honey, does much to instruct people.

I find, that if honey is sold cheap enough any quantity can be sold. A very nice package that goes off quite rapidly is a 5-lb. pail for 50 cts. Leaflets and cards are good things to distribute. I send herewith *The Facts*, that I am circulating.

My crop of honey this season is about 10,000 lbs. —7000 clover, 3000 dark. A good share of the clover, which is of excellent quality, will be disposed of in the home market, and earlier in the season than I ever sold before, and at much better prices than I can get when sending on commission.

Hartford, N. Y.

J. H. MARTIN.

The above makes a very beautiful exhibit, friend M.; but may I venture the suggestion, that there may be an extreme in going to more expense in time and money than is warrantable? Where one has a large crop of honey to sell, however, and deals in supplies largely, the advertisement it furnishes may make it a good investment, and perhaps your exhibit has been the means of selling your large crop of honey so early in the season. Your "Facts about Honey" are so good I should be glad to give place to them, did space permit. I think I may say to our readers, however, that you will be glad to mail them to any one on application.

THAT ESTIMATING COMMITTEE.

FIXING THE PRICE OF HONEY.

I DO not think that a honey-producers' association will ever be able to control the price of honey. It may be able to advance prices a cent or two, or prevent lower prices, in the large centers; but producers will ever be harrassed by low prices. A few years ago, when wire nails were introduced they were quite expensive, and the manufacturers made large profits. Competition was light. Soon other firms commenced making them, and better methods of manufacture were necessary. To-day large factories, with expensive and ingenious machinery, employing hundreds of men, with division of labor brought down to perfection, make them at a profit of a very small fraction of a cent a pound. Does any one think they will ever be made at a larger profit to the makers? Only a scarcity of iron can advance their price. So only a scarcity of nectar will appreciably advance the price of honey. Darwin's "survival of the fittest" comes in here. He who can produce honey the cheapest is the fittest. He who sells too cheaply will go down, as will he who produces at too much cost.

An estimating committee can only estimate the yield. I do not believe they can fix the price; however, they can estimate that too. But the bee-keeper, knowing the estimated yield, can "fix" the price of his own honey. However, let us have an estimating committee, composed of two or more of the largest honey-producers in each State of the Union, where honey is produced; and let us have some sort of an association for the purpose. J. H. LARRABEE.

Larrabee's Pt., Vt.

Very good, friend L. But there is another

thing to be done still, although the estimating committee may not be the ones to do it; and that is, to introduce the honey to everybody, and make them understand the very low price at which it is now offered to the consumer. The point you make, that he who sells too cheaply, as well as he who produces at too much cost, must fail amid the brisk competition that is coming, is worthy of consideration.

FROM 113 COLONIES, 13,000 LBS. OF HONEY, SPRING COUNT,

AN INTERESTING LETTER FROM OUR OLD FRIEND J. P. ISRAEL.

BEES have done tolerably well this season. I sold over 19,000 lbs. of comb honey, and had several cases of extracted. We had 113 colonies to start with in the spring. We wound up the season with 275 stands. If we get through the dry season with 225, and reach the black-sage bloom with that number, I shall be satisfied. My brother and I have dissolved, but I advised him not to move his half of the bees away until that bloom comes.

OIL FOR IGNITING FUEL IN SMOKERS.

I see you have a new kink, using oil for smokers. It is not new, by any means. I have used dry horse-manure and oil for 4½ years. I blew up my smoker the other day—too much oil. I have often had it jump and kick, but this time it fairly blew up—blew out of my hand, turned a summersault, and split wide open in the bottom.

THE SOLAR WAX-EXTRACTOR IN USE FOR 25 YEARS.

I see by the Oct. 15th No. that you say the credit of the invention of the solar wax-extractor belongs to O. O. Poppleton. I can prove that it has been used in San Diego and Sacramento Counties, this State, for 25 years. I can likewise prove that there is now, on the next farm below me, an extractor which has been in use on that farm for 15 years. It is made as complete and perfect as any of the present day. It is 10 feet long, 3 feet wide at top, and tapering to nothing at the bottom. These extractors are, and have been, used entirely for melting comb honey, and thus separating the honey and the wax. It was the only way they had to make "strained" honey. Many large apiarists have them 16 feet long, 4 to 6 feet wide, and covered with hinged sash, made on purpose for them. Only one thickness of glass is used.

The only way here to keep combs is to put them in the top stories of the hives; then you may calculate on losing from one-fourth to one-third of them. They dump these combs, frames and all, into the solar extractor. The next morning (or that evening) they can take out their frames, perfectly clean. For these two purposes the solar wax-extractor has been used in California for many years. I used it for another purpose, and tried to say so, but you did not appear to see the point. I take a large flat pan and fill it with the wax thus obtained, or even old dirty comb. Set it high up next to the glass. Put in a pan, the shape you want your wax for market; have a spout in the upper pan; let it drip into the lower one. There your wax is, ready for market. J. P. ISRAEL.

Encinitos, San Diego Co., Cal., Dec. 14, 1886.

ADVERTISING WHAT YOU HAVE FOR SALE.

DOES IT PAY? AND SOME GENERAL HINTS TO ADVERTISERS.

IN the office, I believe it is generally considered that the advertising clerk has one of the most difficult and responsible places of any of the girls in that room. It seems that, in spite of any precaution we have been enabled to take, there is almost continually some degree of dissatisfaction. The most comes, however, from taking out an advertisement, or from leaving it out, when our customer wanted it in. In view of this I have told the clerk to be sure to have the mistake come by getting in an advertisement when it was not wanted, rather than to leave it out when it was wanted. Advertisers, like many other people, are sometimes in a great hurry, and they hurry off the notice at the last moment, as it were, omitting or forgetting to say how many times the notice is to be inserted, the length of space they wish to have it cover, and frequently do not say whether they want it in every issue, or only the issues of the first of the month. Let us take an illustration, for instance. The following is the contents of a postal card:

Please put under the department, "Queens for sale," we have for sale 6 very good tested Italian queens, 1 Hybrid, at \$1.00 each, or \$6.00 for the 7. Hybrids, 35c. Send \$1.02 to return your money if queens are sold before your order comes.

MODEL BEE-HIVE CO.

W. Phil'a., Pa., Aug. 23, 1886.

You will notice in the above, that our friend does not say a word about what issue he wishes it to appear in, nor does he say how many times. Under the circumstances, on receipt of such an order the advertising clerk sends back by first mail a printed letter which reads as follows:

Friend,

Your favor ofinclosing \$.....received with an advertisement, which we will insert in numbers, as you request, or until otherwise ordered. As you do not mention the amount of space, or the number of lines you wish it to occupy, or give any instruction as to display lines, we will set it up so as to make such an appearance as we think it ought to present. We will send bills after each insertion, for the space occupied. If the above is not satisfactory, please reply by return mail, on inclosed card, giving us correct instructions. According to our advertising rates, given below, we will credit you with the discount at the expiration of the time you wish it to run.

Yours respectfully, A. I. ROOT, Per.....

You will notice, that, in with this printed letter, we inclose a postal card directed to ourselves, so that our customer may take a pencil out of his pocket and tell us what to do, even while he stands in the postoffice, if he chooses. We prefer to pay for these postal cards, and to pay the postage on the letter we send them in, so that our bee-friends may have no excuse for failing to inform us immediately, if our proposal is not satisfactory. We do this, because it is so very difficult a matter to get people to write and tell

us what they do want. Now, after we have done this, our advertising clerk has instructions to insert the advertisement until we get some kind of notice from the advertiser, saying that he does not wish it continued any longer. It seems to me, that almost any sensible man will say, if there is any thing *wrong* it certainly is not *our* fault. A good many troubles have come up, notwithstanding these precautions. Quite a number of pretty good men—that is, we have always considered them to be such—have refused to pay their advertising bills, giving, as a reason, that they ordered the advertisement stopped. Now, after we have very kindly explained to them that their letter ordering it stopped did not reach us until the journal had gone to press, they still object. In one or two cases where advertisements have been ordered out, the order was written within three days of the last of the month; and yet the advertiser claimed he was under no obligation to pay.

Now, in regard to the postal card we have given above. The advertising clerk inserted the advertisement four times, at a cost of a dollar each insertion, before we got a word from the Model Bee-hive Co. Then he claimed it was ordered in for only *one* insertion, in the first place. He writes in regard to it as follows:

We wrote to you, saying to put said advt. in Sept. No. of GLEANINGS. We left home shortly after the first of Sept., and just returned home last night, and, to our surprise, you had continued said advt. (on examining GLEANINGS), and sent two or three postals, stating amount due you. We wanted said advt. only in Sept. No. If we had wanted it in any other numbers we would have told you so.

MODEL BEE-HIVE CO.

West Phil'a., Pa., Oct. 27, 1886.

As we have published every letter and figure on his order, one can readily see that our friend is greatly mistaken; and the advertising clerk and book-keeper, without bringing the matter to me, wrote him that they could return his order if he wished, to show him that he didn't say a word about putting it in the *September* issue; therefore that we should expect him to pay for his neglect in not notifying us. On my return from the Albany Convention, the card below was handed me, which was sent us, I presume, in answer to a statement in regard to the remaining \$3.00.

We wrote you some time ago, Oct. 27, thinking that you were charging us for running our advt. which we did not order. If you will look up our letter, which will tell you all about it, we do not care to repeat it here. However, of all the advertising we ever did in GLEANINGS, it never paid us $\frac{1}{2}$ of our advertising money back. Make a note of this, and publish it in GLEANINGS, as you never say any thing about those that write you about advertising not paying—only those that say that their advts. paid. Come out with both sides of it, and oblige

Respectfully, MODEL BEE-HIVE CO.

West Phil'a., Pa., Jan. 14, 1887.

I read it over in a little surprise, and asked for the whole of the correspondence in the matter. Now, the advertising clerk, the book-keeper, and, in fact, almost everybody, would say that our friends of the Model Bee-

hive Co. are *entirely* at fault. If they permitted the advertisement to run through neglect, or even through absence from home, there was no one at fault at all except themselves, therefore they should pay the bill. Very likely the above course would be *justice*; but you know, dear friends, I have been talking to you a good deal, not only for months, but even years back, in regard to doing a little *more* than justice by our fellow-men. "If a man compel thee to go with him a mile, go with him twain." I read a little more carefully the letter of protest made by our friend when he received a bill for \$4.00 for advertising, and in it I found the following:

The queens were offered for \$6.00, and you send bill in for \$4.00! Not much profit. Besides, the queens remain unsold. I did not get one offer; we did certainly not expect to advertise them to their full value, or else we might as well have sold you the queens for two dollars. Besides, it looks bad to advertise 6 queens 4 times. It does not look as if we were selling queens fast. I think common sense or judgment would have told you, or any one else, that we could not offer queens so low, and then spending all the amount for advertising them, to sell them.

MODEL BEE-HIVE CO.

West Phil'a., Pa., Oct. 27, 1886.

Now, there may be differences of opinion here. A good many will say, "Although it does look very bad to pay out \$4.00 for advertising \$6.00 worth of queens, it was entirely the fault of the advertiser for not saying how many times he wished the advertisement put in." It was mainly his fault, I agree; but I think, dear friends, he is right in saying that common sense or ordinary good judgment ought to have decided that no man in his senses would wish to pay \$4.00 for the *chance* of selling \$6.00 worth of goods. Who is at fault, then? The editor of GLEANINGS? You may say, "The editor of GLEANINGS, with his multitude of cares, can not go into every little matter like this, without breaking himself down, mentally and physically." The advertising clerk is also burdened with so many cares and so much business that it is pretty hard for her to stop to inquire whether a man knows what he is talking about or not, when he sends in an advertisement. To avoid similar cases I have asked Ernest to examine every advertisement, and be sure that it makes good sense before it is allowed to go into print, and I think he has done his work pretty faithfully. In reviewing the above advertisement of late, he would say at once that it was all straight and consistent. If somebody had asked him, however, if it was probable that this man wished such an advertisement *continued*, he would at once have decided not; but he is already pretty severely burdened with a multitude of cares in his work on GLEANINGS. The proof-reader made sure it read according to *copy*, and that ended *his* part of it.

Let us now consider the latter half of communication No. 3. He says, in substance, that the advertisements he has put in GLEANINGS never brought him a *third* of the money he paid to have them *inserted*. This is a pretty bad showing for GLEANINGS, dear friends. I am well aware, that a good many

advertisements do not pay the friends who send them. Quite a number have refused to pay for advertising, on the ground that it did not do them any good, and I have been asked to excuse them from paying an advertising bill because the advertisement profited them nothing. I have refused to excuse, on the ground that it was no fault of mine. *Sometimes*, it is true, I am asked if I think a certain advertisement will pay; and I remember that I have, a good many times, replied back that I felt pretty sure that it *would not pay*. Yes, I have sometimes written to friends who wanted certain things advertised, that I felt sure it would not pay, even *before* my opinion was asked. I have been pretty roundly abused once or twice for making similar suggestions. Knowing the supply of queens there was in the market in September, I could have told the Model Beehive Co. beforehand, that their advertisement would *probably* do them no good—had my opinion been asked. Now the question begins to assume something of this shape—"Am I my brother's keeper?" To which I reply, "Yes, sir. *I, for one, am my brother's keeper.*" I want God to hold me responsible, not only for my brother's spiritual welfare, but for his financial welfare; and my decision is, that, under the circumstances, we ought not to ask pay for the three last insertions. If my mental strength does not permit me to take a brotherly review of all the advertisements sent in to us, it is my business to employ somebody who can intelligently advise our bee-friends in regard to inserting advertisements. And the moral to this whole long story is, to ask you all,* in sending in advertisements, *if you feel inclined*, to ask our opinion in regard to the advisability of inserting said advertisement. We will advise the best we know how, and without charge. This advice, I presume, will cut down part of our advertising patronage, but I shall be glad to cut it down, because I know that a goodly part of it has not been profitable to our hard-working and close-scraping bee-friends, many of them. After having given this advice, you are to act as you see proper, and we can not be responsible for the profitableness of the transaction any further.

TEASELS, AGAIN.

SOME GOOD ONES FROM THE PACIFIC COAST.

SINCE the appearance of a series of articles on the teasel-plant and its culture in one of our local papers, and two or three short articles in GLEANINGS from which extracts were made by the N. Y. Tribune and other leading papers, it has been ascertained that teasels of good quality are grown in Oregon. That fact alone has set our dealers at work, and the result is, that several carloads have already been shipped here and held at our railroad station for inspection and re-shipment to factories. That they are of good size and good quality, there is no mistake; and, for

*Of course, the *veterans* in advertising, who have had sufficient experience to know whether it is important for them to advertise or not, and how much, would hardly care for my opinion in the matter.

ought I could see, are *fully* equal to our own growing. I intend, when I write on any subject, to be accurate, and keep myself posted; but it was this very writing that unearthed the existence of that French colony away out on the Pacific coast, quietly growing their teasels and supplying their neighboring mills. If the quality is good in Oregon and here, I believe there are *many* other places, when found, that will prove to be adapted to the growing of this crop. I had also supposed that the expense of shipping and then reshipping would be too great to warrant any one in raising them if they were far from a market. What I mean by a market is a middle-man, or dealer.

Now, you will ask me why the grower can not ship direct to the factories. We will suppose that the first factory that saw fit to order of you made a specialty of woolen blankets. Of course, for that coarse work they would want "kings," and you would not have enough in your whole crop, of the right size to fill their first order; and your next sale would be as likely to be kings as any thing. Without carrying this comparison further, you can see that, in order to deal direct, one must carry a stock of a good many thousand dollars' worth; and, further, the handling, sorting, and packing, is a trade of itself. But if our dealers at present prices (6 cts. per lb.) can pay freight from Oregon, and then compete with us, I think some of my good bee-friends had better look into the matter.

I will answer any question through GLEANINGS that its editor may see fit to ask, but I can not undertake to answer by private letter.

Thorn Hill, Onon. Co., N. Y. C. M. GOODSPEED.

THE NON-USE OF FOUNDATION.

A REPORT FROM W. Z. HUTCHINSON'S OWN NEIGHBORHOOD.

AFTER reading the articles on the non-use of foundation which have appeared from time to time in the bee-papers, I think the "other side" should have the benefit of the following:

Mr. W. Z. Hutchinson has a neighbor, Mr. C. D. Doane, living about two miles distant. In the spring of 1886, Mr. Doane purchased 350 of Mr. Hutchinson's discarded combs. That season Mr. Doane produced 6500 lbs. of honey from 50 colonies, spring count—an average of 130 lbs. per colony. If I am not mistaken, Mr. Hutchinson had 8700 lbs. of honey from 55 colonies, spring count—an average of 121 9-11 pounds per colony. At the close of the season, Mr. Doane's bees had an average amount of 30 lbs. of honey—natural stores—to winter upon, while Mr. Hutchinson's bees had to be fed sugar syrup. Mr. Doane attributes his larger honey product to the combs purchased from Mr. Hutchinson. Mr. Doane's bees increased to 125 colonies. Mr. Hutchinson's increase I do not know. I think the amount of increase would be likely to affect the general result somewhat.

I have Mr. Doane's figures from that gentleman himself, but am not so fortunate with those of Mr. Hutchinson, but I think them correct.

Flint, Mich., Jan. 17, 1887.

M. S. WEST.

We are very much obliged indeed, friend W., for your communication, for it proves this, if nothing more: That friend Hutchinson has an exceedingly good locality—or, at

least, it has proved so during the season that is past. If Mr. Doane increased 50 colonies to 125, and secured over 130 lbs. per colony, he certainly did exceedingly well.

PEDDLING HONEY.

FRIEND COLTON RELATES HIS EXPERIENCE.

IT is very pleasant and agreeable to me to read the reports of those who have been successful in marketing their honey. I have not yet read a report of a failure in peddling honey. This strikes me as somewhat remarkable, as my experience has been quite different from that of those who have reported their success in GLEANINGS. Evidently, those who found peddling honey a poor business thought their report would not tend to the "encouragement of bee culture." There is a short time after our busiest time with the bees is over, and before cold weather has caught us, that we can profitably market honey as peddlers. We can then draw it off from a barrel without the necessity of charging our customers for a tin pail or jar, which, when added to a small purchase, raises the price above the price of comb honey. If you peddle near home you can call for your pails after the honey is used; but peddling near home will not suit the groccerymen who are selling your honey.

A bee-keeper from a town near me told me he had disposed of about 7000 lbs. of extracted honey by peddling it out at 9 and even 8 cts. per pound. He had canvassed, I think he said, nearly every town within one hundred miles of home. In many towns, bee-keepers are trying to keep the price of honey up to something above the cost of production; and when the honey-peddler strikes a town where he can undersell those engaged in the production of honey, his sales are apt to be quite satisfactory. Somehow I can't get very happy and enthusiastic over the honey-peddling scheme. Few bee-keepers will make themselves so notoriously honest, and their honey so perfect, as to be above suspicion for any great distance from home. Brother Root, we do not all have the faculty and experience in advertising that you have, even if we controlled a publication like GLEANINGS, which circulates to a certain extent through all our States and Territories. I rigged out a wagon for peddling, and spent about a week at the business. I averaged a sale of about fifty pounds per day. When I could not sell a pail, I dug out, of a large can, granulated honey, but, of course, found this tedious, as cold weather was gradually setting in. I intend to rig up a sleigh of some kind and continue the fight, even if it takes all winter, and I have no doubt it will. There is no other way left for me to dispose of my crop of honey. I tried, in the latter part of last winter, to get something out of what honey I could not sell at home, by sending it to St. Louis, to be sold by a commission merchant. I realized for the honey, after deducting cost of pails, freight, and all charges, a trifle over two cents per pound. Said honey was well-ripened clover and basswood, but a portion was produced the year before, and kept over, as I could not get rid of it. I got honey in all of the stores near home I could, and they offered it at ten cents per pound. I hope you will publish this, and some one who has had more experience than myself in peddling honey

will show where I have erred in my conclusions on this plan of peddling honey. The point is, can we increase the consumption of honey more by peddling than by leaving it at the groceries? I do not wish the mistake made, that, because we get a fair sale by peddling honey at a price lower than our brother bee-keepers who are already selling low enough, that this policy will be wise in the long run. Our rivals in the business will be compelled to come down also; and when the price gets so low that you can not undersell, peddling will fail to relieve us of the problem of disposing of our honey.

J. B. COLTON.

Waverly, Ia.

WILL HONEY EVER BECOME A STAPLE?

SHALL WE ORGANIZE TO KEEP UP PRICES?

I HAVE disposed of much the largest share of my fifth and largest crop of honey; and although I have not been in the business nearly so long as Heddon or Dadant, I have nevertheless followed it long enough, and at just the right time, to suffer from the most sweeping decline in prices that any natural product has perhaps ever known.

The year 1882 was a good one in this locality, and honey wholesaled at 20 and 25 cts. per lb. I do not like to tell what I have obtained for the bulk of my comb honey this year. Every year since the first one, I have been laboring to develop a market at and near home, and I think I have obtained a pretty fair idea how nearly honey is likely to become a great staple. I am certain of two things; viz., that honey will never become a universal staple, and that lower prices do greatly increase consumption. I can give items of experience which go far to demonstrate these propositions. It is a matter of continual surprise and wonder to me that the majority of folks do not like honey. Not one out of ten whom I tackle on the subject cares anything for it. I eat over half the honey used in our house; and I find among many of my best customers, that about one of the family is all who takes it. I have pretty much learned whom it is worth while to approach around home.

Springfield takes the largest share of my honey.

I tried an experiment this year, which has taught me much of the lesson I have been steadily learning for four years. With a large crop, overstocked markets, and low prices; with more honey than money, I resolved to try how near I could make the former take the place of the latter. I had some building to do, and I canvassed the city with a view to trading honey for materials, so far as I could. I would patronize him who would patronize me. I found just one lumber-dealer in the place who would trade that way. He would have—how much do you suppose? *Three pounds!* After visiting half a dozen paint-shops I found one man who would do somewhat better. He ordered enough to pay for paints and brush. I canvassed the hardware-stores, without avail. Dry-goods stores and shoe-stores were tried unsuccessfully. I sold 10½ lbs. to one hatter. Almost the unvarying note was, "We do not like honey." It looks like small business at the start, and it turned out so small that I shall not work very much in that line.

As I had a few apples and potatoes to sell, I re-

solved to try the women at their homes. I had had some experience in selling fruit and vegetables some years before, and I had learned that that was the way to make trucking profitable. Women like to have living necessities brought to their doors. There were fruit and vegetable wagons on every street, while I, almost alone, offered honey. Yet I could make six sales of either one of the other products to one of honey. They never interfered with a honey sale either. In the light of my experience, how Mr. France succeeds so well in peddling honey is a riddle to me. Yet I say, that lower prices will greatly increase consumption. The volume of business has vastly grown around here, and I believe it will continue to grow. That this growth is largely due to the fact that the business has been worked up, is no doubt true; but I know very well that a great deal that has been sold this year would have remained unsold at higher prices. For example, Mr. W. sells comb honey at 12½ to 15 cents, and a number of customers, somewhat like one he mentioned, a day laborer, buy considerable at the former price, who purchased but little when it cost more. In 1882 Mr. W. sold about 100 lbs. for me at 22 to 25 cts. In 1883 the price fell to 15 cts., and he sold about 250 lbs. The next two years the crop was short, with prices higher and sales less. In 1885 he retailed at 18 cts., and sold perhaps 250 lbs. for me. This year he has sold lower than ever before; and what is the result? He has already disposed of over 400 lbs., about 120 lbs. being extracted, and I am to deliver him about 150 lbs. of the two kinds this week.

Said Mr. W. to me, "I can see that it cuts into the syrup trade like every thing."

You see, at such prices honey becomes a competitor with other commodities. Four years ago, only a few of the principal stores offered honey for sale; but now the stock in trade of none but a few suburban grocers is complete without it.

Prices will not continue to decline as they have been doing. We shall reach rock-bottom pretty soon. I am very willing that honey should be put within the reach of the poorest. We owe this to humanity. A honey-pool is a chimera. One hundred manufacturers of an article may combine and control the market; but tens of thousands of hog-raisers or honey-producers can not. But if they could, I do not want them to do so. I am opposed to great or petty monopolies, as all such combinations tend to become. We should, instead of trying to keep up the price of honey, do our best to make our industry profitable by producing at the lowest possible cost. GEO. F. ROBBINS, 93-61.

Mechanicsburg, Ill., Jan. 10, 1887.

FEEDERS.

HOW TO MAKE THEM.

"IN times of peace prepare for war," is an old saying. While I hope we in this country may never be called upon to prepare for another war with swords and musketry, yet there is always in this life a need of a warfare, and a preparation for the same, if we would be successful in the undertakings of life; and as in battle the army is most likely to be successful which has been thoroughly prepared in "times of peace," so the person who uses his leisure hours in getting prepared for the "heat and burden" of the

harvest time is the one most sure of success. In nothing is this more true than in bee-keeping; and yet the majority of bee-keepers while away the winter days and months, not seeming to think that another season of heat and toil is coming until the season is upon them. To the truth of this, nearly every supply-dealer can testify; for in spite of discounts offered, and entreaties published and otherwise made during winter, all know that the great rush comes in May, June, and July. These thoughts were brought up by a friend desiring to know how I made my bee-feeders, and saying, "I want to get every thing in readiness this winter for another summer." I predict for that young man a successful life, health and strength being given him. As I have just finished making a lot of feeders I thought it might not be amiss to answer his question through GLEANINGS; for after trying nearly all the feeders ever advertised, I like the best of any the one about to be described, so I have discarded all the others. The idea of such a feeder I got out of some of the bee-papers; but when and where, I do not know. This feeder I call a division-board feeder, yet it is different from any such feeder which I have ever seen described.

To make, get out one piece $\frac{3}{4}$ of an inch square, and the same length as the bottom-bar to your frame, providing the end-pieces to your frame are nailed to the end of the bottom-bar. Otherwise make this piece as much shorter as the two end-pieces of your frame are thick; for it is to hang in the hive the same as any frame. Also the end-bars and top-bar are to be only $\frac{1}{4}$ inch wide, as a feeder of that width keeps the bees from drowning without a float, while, if wider, a float is necessary. Besides these four pieces spoken of above, you want two very thin boards (I make them 3-32 of an inch thick), the same size as the outside dimensions of your frame, less $\frac{3}{4}$ of an inch at the top, it being supposable that the top-bar to your frame is only $\frac{1}{4}$ inch thick. In any event there is to be a $\frac{1}{2}$ -inch space between the under side of the top-bar and the upper edge of the thin boards, for an entrance to the feeder.

Next, get some white lead and thin it with boiled linseed oil till of the consistency of thin cream; for all the joints of the feeder are to be fixed so there can be no possibility of leaking. Now with a small marking-brush put some of the thick paint on the end of the $\frac{3}{4}$ bottom-bar, and also on the lower end of the end-bar, where it is to be nailed to the bottom-bar, and nail together, preparing the other side the same. Next lay down your frame, which is complete, except the top-bar, and paint the sides which are up, and also around the edges of three sides of the under side of the thin board where they are to come in contact with the frame. Place the board so it comes even with the bottom and outside of the frame, and nail on, using $\frac{3}{4}$ -inch wire nails, and driving the nails from $\frac{1}{2}$ to $\frac{3}{4}$ inch apart, when the other side is to be treated the same way. Now take the end-bar of a frame and saw it off short enough so it will come up within $\frac{1}{4}$ of an inch of the top of the inside of the feeder, when it is to have three $\frac{3}{4}$ holes bored in it near the bottom, the bottom one cutting out just a little at the end. Slip this down in the center of the feeder, and nail each side to it. This piece is to keep the thin sides of the feeder from bulging out when the feeder is filled, and the holes in the bottom of the stick are to allow the feed to run through from one side to the other, or it will be filled only from one side.

There is nothing more to be done with it at present, except to paint the outside with two good coats of paint, when it is to be set away for two or three months, to have the paint thoroughly dry in the joints. When thus dry, melt five or six pounds of beeswax or paraffine (the latter preferred), heating it quite hot, and pour into the feeder till full, when it is to be poured out again in a moment or two, using it for another feeder, and so on till all are coated with wax on the inside. If the wax is quite hot and the feeder well warmed, it will penetrate the wood to the depth of 1-16 of an inch, which is a double preventive against leaking, while the main object is the keeping of the wood from taking up the feed by soaking, in which case the feeder soon becomes sour, and will sour the feed ever afterward, unless at once taken up by the bees.

We are now ready for the top-bar, which, after having a hole bored in it near one end for the point of a funnel to enter, is nailed on. Our feeder is now complete; and, barring accidents, it will last a lifetime.

HOW TO USE.

To use it, hang it in the hive the same as a frame; and if the colony is at all weak, put it at the side of the hive the furthest from the entrance. In fact, I always use it at one side of the hive; for in that case the slit which is cut in the quilt over the hole through which the funnel is inserted is always in the right place, while otherwise it would not be. Having the feeder in place, and the slit cut in the quilt, insert the funnel, pour in the feed and remove the funnel, when the slit will close up so no bees can get out or in the way. Twenty cubic inches of ordinary honey will weigh one pound, so it is easy to tell how many pounds your feeder will hold. Mine, made to fit the Gallup frame, holds nearly 5 lbs., so I am sure not to run it over, if I feed $4\frac{1}{4}$ lbs. at a time. If I wish to feed more at a time I use two or more feeders; if less—well, I will tell you just how I do, even if it does make this article a little long.

To carry feed, I use a common watering-pot with the rose, or sprinkler, taken off. This watering-pot is set on the scales, and feed poured in till one pound is registered. I now, with the point of my knife, scratch the tin a little at the top of the feed in three different places, about equal distances apart; pour in another pound and mark again, and so on till the vessel is as full as I can carry it, which is generally about 15 lbs. I now pour out the feed, and wash and dry the watering-pot, when I touch a little paint, made of red lead, on each of the places scratched with the knife, and by the side of them I place figures, made with the same paint, from 1 up to 15. When this paint becomes dry I always have a scale of pounds with me which tells me at once how much feed I have, and just what I am doing, as soon as I hold the watering-pot level, and glance down into it.

Now just a word as to why I like these feeders. Placed where I put them, they become a part of the side of the hive; and by knowing that the cluster of bees is next to them (as a few minutes' preparation will always make them), they will take the feed at any time of year if the feed is a little more than blood-warm when fed, so there is no danger of feed not being taken in cool or cold weather. Second. These feeders require no storage room, as they can be left in the hive when not in use, if it is wished so to do; and at such times they can be used as a division-board. Third. The weakest nucleus can be fed with no danger of robbing, when used as I

have directed. Fourth. They are always handy, and no bees are in the way to bother while filling. Fifth. No float is required, as is the case with many of the feeders. Reader, make one or two for trial, during your leisure hours, and see if you do not agree with all I say.

G. M. DOOLITTLE.

Borodino, N. Y., Jan., 1887.

Friend D., you have given us some important suggestions in regard to the use of what has been called a division-board feeder; but why not cut into a solid piece of board with a circular saw, instead of having so much trouble to nail it up, and wax and paint it? The solid piece of board would probably hardly hold five pounds of honey; but it seems to me it would be much cheaper and more substantial. There are two or three patterns in our museum that have been sent in at different times. One great objection to these feeders with us was the running-over while filling; but this matter you have very ingeniously remedied.

HOW LONG HAS EXTRACTED HONEY BEEN ON THE MARKET?

FRIEND DADANT'S COMMENTS IN REGARD TO THE STATEMENTS ON PAGE 21, JAN. 1.

FRIEND Heddon, are you not making yourself older than you really are? Did you say 28 years since we have been producing extracted honey? and "during all this time friend D. and his class . . . etc."? I am trying to believe that it is a typographical error, and that you meant 18 years. But even *that* won't do, as I will show.

Friend Heddon, you have a historical record in the old *A. B. J.* that you ought to refer to once in a while. Let me give a few reminiscences:

In 1865, 22 years ago, the honey-extractor was invented.

In 1868 it was first described in the *A. B. J.*, Vol. 3, page 189.

In 1870, *A. B. J.*, Vol. 6, page 118, friend Heddon reported 523 lbs. of *box honey* from 6 colonies, and stated that he had as yet no "emptying machine." So it is just *sixteen years*, not 28, since Heddon has been using the "extractor," and producing and introducing extracted honey.

But Mr. Heddon did as we did, and as you did, Mr. Editor; he began by extracting unripe honey. Then came adulteration, which we fought together for 6 or 8 years. Now, adulteration is about scared off, both by our denouncing and by low prices. The principal adulterators even went so far as to publish circulars to announce that they had stopped the practice. But honey has been *very* plentiful for only about three years; and, as I said before, it is *not even now* as cheap at retail as the wholesale prices would justify. In sugar- and syrups, there is but a fraction of a cent between the wholesale and the retail price.

Friend H. talks about "all this introducing!" Indeed, a little progress has been made. It took about ten years for us to obtain of the Boards of Trade the special quotation of "extracted" honey, which was going, and is still going, in many places, as "strained" honey. Why tell us that extracted honey will never be a staple, when its introduction is so new that not one person in a hundred knows the difference between strained and extracted?

The people who like honey better than syrup "*only because it costs more*," are the same ones who want strawberries in January and fresh oysters in July. Luckily we do not rely on this class for the sale of our extracted honey, for they will buy only the whitest comb honey, even if it is *horsemint* honey, taste being no object.

Friend Heddon says that the specialist alone will continue bee-keeping, and the small ones will drop out in the near future. Does not this prospect scare you, friend Root? More than two-thirds of your readers are either farmers, doctors, clergymen, etc., not specialists, and you are going to lose them! In answer, let me cite the words of Mr. G. H. Beard, a well-to-do farmer of Winchester, Mo., a bee-keeper, *not specialist*:

"I find more difficulty in selling honey than in raising it, or wintering my bees; but with all that, it is my honey that pays the expenses of my farm in these hard times."

To sum up: Honey is good, better than syrups. It can be produced as cheaply as cheap syrups, and must become a staple, sooner or later. We are too eager, too anxious, when we expect a radical change to take place in so short a time as that which has elapsed since we have found that we could produce it largely. Let us not become discouraged; let us sell *low*, and *around home*, and create a market for coming years.

C. P. DADANT.

Hamilton, Ill.

Perhaps, friend D., I should beg pardon for not having noticed the part referring to 28 years. I recall to mind now, thinking it could not be so long a time, but I did not know where to find the figures readily. I believe I produced the first ton of extracted honey put upon the American market. Mr. Langstroth had made a rude extractor, and tested the sale of the new liquid honey by putting several jars full on the market. I believe a record of all this was given in the *A. B. J.*, although I have not taken the time to look it up. If I have made no mistake, the honey-extractor was described in a bee-journal started in New York just a little before the *A. B. J.* resumed—somewhere about 20 years ago. The matter is of no practical moment, only it may be interesting to know just how long we have been teaching the people to use liquid honey, and I think friend Dadant's closing paragraph is pretty near the truth.

HONEY FROM THE WILLOWS, ETC.

HONEY-DEW ON THE BANKS OF THE MISSOURI.

IT may be interesting to you to know what the bees are doing on the banks of the Missouri at Bluffton, Mo. We commenced with 6 colonies, two of which were in Simplicity hives, the other four being in box hives. They commenced gathering pollen from the willows. The latter cover the islands here in the Missouri River, and are about the first thing to bloom here. On this they built up quite rapidly, and by the time fruit bloomed they were quite strong, when we transferred those in the box hive into Simplicities. It was our first attempt; but by following instructions in the *A B C* of Bee Culture we got through with it pretty well.

Bees commenced swarming earlier than usual, and did not seem to know when to quit. One could

see a swarm passing over almost any day; however, we did not lose any that we know of, neither did we allow ours to swarm more than once.

The white-clover and basswood yield was rather short. Basswood yielded honey only a few days. All the white honey we secured was about 100 lbs.

About the 28th of June we had one of the heaviest rains seen here for years; and after that we had none to amount to any thing for two months. This cut our honey-flow from flowers very short, as it set in very hot and dry just after the rain; but, fortunately, the honey-dew came in abundance, and the bees lost no time in taking advantage of the situation. They would be out at daylight, and from that until about 10 o'clock they seemed almost wild; but during the warm part of the day they would take a rest. This, we suppose, was due to the honey-dew being too thick when the water had evaporated. As nearly as we can estimate we extracted about 450 lbs., and procured about 25 lbs. in 1-lb. sections. We do not know exactly how much we extracted, as we have supplied father's house with honey since our first extracting; and being a family of seven, all of whom like honey, you may know that no small amount was consumed. Neither can we estimate just what it net us per pound, as we have not yet received returns for the greater part of it, but think it will be about 6 cts. per lb. We increased from 6 to 12, and bought three colonies from our brother, who promises to stay out of the bee-business in the future, so we count 15 colonies in Simplicity hives, not in the very best condition for winter, but trust they will come through all right, as they are sheltered from the northwesterly by a bluff—something which we consider a great advantage to an apiary.

We almost forgot to mention, that our own bees gathered some honey from a tall white flower that grows along the roadside, the name of which we do not know. We consider it equal to any honey we ever tasted. It is of a golden color.

If a hive is opened while the bees are gathering this honey, one can detect the scent of this flower at some distance from the hive. It is a very common weed here, but we consider it a splendid thing for bee-keepers, as it commences flowering in the latter part of August, and continues until frost.

MILLER BROS.

Bluffton, Montgomery Co., Mo., Dec. 31, 1886.

HOW OUR FATHERS DID.

HOW TO SECURE WORKER COMB WITHOUT FOUNDATION.

ACCORDING to the conclusions of several writers who tried to get perfect worker comb without the use of full sheets of foundation, as practiced by Mr. Hutchinson, it would seem as if there had never been any good set of combs before we had foundation. I wonder whether they have never noticed good combs among a lot of box hives to transfer. Wherever such are found it can safely be said that they are built by after-swarms. There may not be many so found, but more regular results can be obtained; and a review of old-time bee-keeping will make it more plain. As stated before, we then kept our bees in straw hives, cone-shaped, and others consisting of rings piled up with flat covers, all wide enough to hold 8 to 9 combs. We put a piece of guide-comb

in the center, and made them build straight. As the hives were all round, it will be seen that the center combs were the longest, and the extreme sides about the size of a hand. In order to get good stocks, with all worker cells, we put in early strong second swarms, natural or driven, and I do not remember of failing to get all worker comb, with the exception that one or at times both of these small side combs were built drone comb, simply enough needed by every colony. I say needed, because, if no drone comb be allowed them they will disfigure other combs or go into the sections for that purpose. In first swarms we expected more drone comb, especially where the queen was older than one year. It may therefore be best to give the latter foundation where new combs have to be built. I used to trim down the lower edges of too tough old comb, after swarming, which would be renewed, as soon as the young queen would be pressed for room, with worker comb. If such was practiced before swarming, more or less drone comb would be the result, and that for immediate use. Ever since I have used frames I do the same as I did in straw hives to get worker comb. I put strong swarms with young queens on 7 to 9 frames, 12 x 10½, and seldom see more drone comb than a little on one side. I so treated several last season, some of which are in L. frames. In the latter it is much harder to get full frames, on account of their large size and shape. It is necessary that such swarms be put in early, so that they fill the frames thoroughly; for if left for the next season they are almost sure to be finished with drone comb, unless the hive be inverted to have them finished above, and then there might be some, if they are in need of it.

To what extent foundation can be used profitably depends much on circumstances: what it costs one, whether he makes it himself, what his time is worth, etc. Foundation pays in all cases where no good results can be obtained without it, as in filling out the spaces in transferred colonies, building up of nuclei, late swarms, and adding frames, in increasing generally, where it is hard to get perfect worker combs built. As to moving surplus-cases with new swarms, I have also always practiced it; and as I work mainly for box honey I find it the best way to get even with bees that persist in swarming. It was also Mr. H. who remarked, some time ago, that as much comb as extracted honey could be obtained. Among the few believers in this I am one.

C. H. LUTTGENS.

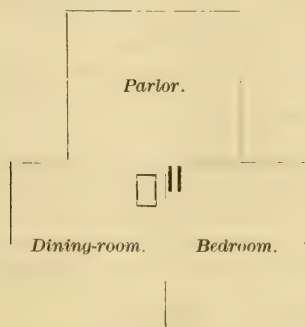
Hammon, N. J., Jan. 9, 1887.

WARMING OUR HOMES.

FRIEND TERRY GIVES US A LITTLE TALK ON THE SUBJECT.

FRRIEND ROOT:—Some weeks ago I received two letters, thanking me for some things said in GLEANINGS, and asking me to tell how we warm our home. I am always glad to get and answer such letters, for then I know I am writing something that some one wants to know about. Like every other family, I presume, wife and I have our particular notions. For example, we do not like a furnace. Having been brought up around wood fires in stoves and fireplaces, we do not feel quite warm and all right, some way, unless we can see the fire. Then, again, a furnace

would make our cellar too warm to keep vegetables nicely. We want to keep the temperature there at about 34° during the winter. At that temperature apples do not rot nor potatoes shrink and sprout. Therefore we decided against a furnace. Then came the question, "Shall we have grates?" They are very pleasant and cheerful, and ventilate the rooms well, but they burn a large amount of fuel. In other words, a large part of the heat goes to waste. Then they are expensive, and it is a good deal of work to take care of them, and, really, in cold weather one wants to have the house warmed in some other way, when he has a grate to sit by. About the time we were thinking over this question of how to warm our house, after it was built, a gentleman who had just put in a grate, and was loud in its praise, asked me to go home with him one evening and see for myself how cheerful and comfortable it was. I went, and there sat the wife with a heavy shawl around her shoulders, and her feet to the grate. One glance told the story—comfort on one side. Well, wife and I, full partners, as Prof. Cook says, determined to warm our home so it would be comfortable, cheerful, and healthful, having due regard for economy and cleanliness, and so it should be as little trouble as possible to take care of the fire. For the latter purpose we determined that one large stove should warm the three main rooms below, and that it should be a base-burner anthracite-coal stove. To make it healthful we would not live in one room, but in two or three large ones, thus having lots of air-space, and then we would arrange for plenty of ventilation. We looked for a stove where we could see the fire burning all around, so that it would be just as cheerful as a grate. As for comfort, after quite a trial (this is the fourth winter) we think we have found a pretty good supply of it.



Before going further, please notice the arrangement of the main rooms below, as shown in the accompanying plan. This plan merely gives the outlines of the body of the house, without showing porches, bay window, pantry, kitchen, etc. This is sufficient for the point I am trying to bring out in this letter. You will notice, that from the dining-room into the bedroom, and also into the parlor, or living-room, there is a wide double door. These doors are eight feet high, so that, when open, the three rooms are practically one. The stove shown is in a position so central that it radiates heat readily into all the rooms. The doors may be closed so as to warm the dining-room, and either of the other rooms, or the dining-room alone. Ten or fifteen minutes' work will take care of the fire for 24 hours. Directly over the stove is a register opening

into the hall above. From this hall are doors into five bedrooms. The chill can be taken off in these bedrooms, if desired, although a stove upstairs in the writer's office generally answers this purpose. The double doors opening into the bedroom open back into that room, one on each side. Of those opening into the parlor, one is hung on the other, and they fold around in front of the chimney.

As I have written before, our kitchen was built for work. It is just the same size as Prof Cook's. We eat and live in the *best of the house*—perhaps I should say in the *body* of the house, as the kitchen is just as nice and pleasant as any other room. I pity those poor people who live almost exclusively in the kitchen, or a rear dining-room, perhaps, and open up the main body of their house (not home) only when they have company. I am happy to say, that my wife thinks her husband and children are just as good as any other company. How I dislike to visit where they have to go and build a fire in the best part of the house, and be thrown all out of the regular order of things by my arrival!

As we use it, our stove burns about 4½ to 5 tons of coal between, say, Sept. 15 and May 15. I paid last summer \$25.00 for 5 tons—not a very large sum for the comfort. The fire, of course, never goes out. To keep the entire house warm, upstairs and down, would probably take 8 tons. As to healthfulness, as we use it we consider it all right; but a base-burner in a single room, poorly ventilated, would be another matter. When the children have company in the evening we give them the house below, and wife and I go to our large room (my office, 16x18) upstairs. The floor of this room is deadened, so we hardly notice any racket that may be going on below. The bedroom below is used for company.

I have written to you in favor of sunshine in our homes. There are 9 large windows and 2 glass doors in the three rooms. Our room (wife and I) upstairs has 4 large windows, and in a bright day in winter the sun will almost warm it.

I should, perhaps, call attention to the fact, that, with a large (a little too large rather than too small) base-burner, properly managed, a gentle, uniform heat can be kept. The stove never becomes redhot, thus burning up the air. One can avoid being too hot one hour and too cold the next, as is often the case with wood-stoves or cheap soft-coal stoves. It is partly on this account, I think, that we have not had more than one-fourth as many colds in our family for the last three winters as we used to have; in fact, they are almost unknown.

Hudson, O.

T. B. TERRY.

I believe, friend T., that I agree with you in the main. I suppose you are aware, that your base-burner could be arranged so as to take pure air directly from outdoors, without very much more expense. With the large number of rooms you have communicating with each other, however, I do not believe I would advise this. It takes very much more fuel, especially during zero weather, where all the air we require is brought by a cold-air pipe from outdoors. We have tested, at different times, almost all arrangements and appliances for heating. I do not like a furnace in the cellar, because there is always more or less liability of leakage that will permit coal gas to come into the rooms. New furnaces often work without this trouble for two or three years; but when

they get old there is great liability of trouble of this kind. Where circumstances are favorable, steam does the business nicely, and the heat may be distributed and made to come exactly where you want it, and no heat where you prefer none. By the way, I presume you meant you would like to keep your potatoes at a temperature of about 34°; and that whenever the weather is cold enough you keep it pretty nearly there. To keep it at all times at or about 34° would require the very best modern appliances for cold storage.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FOUNDATION OR NO FOUNDATION.

MR. BASS objects to empty brood-nests, when hiving swarms, on the ground that, in his locality, the yield is slow. At the Indianapolis Convention, Mr. Poppleton suggested that my *success* might be attributable to the same reason; viz., a long, slow flow. I do not think the success of my plan would be materially affected by either. If the flow is abundant, the bees are furnished all the *fdn.* they can draw out in the supers; while if it is slow the bees certainly have abundant time in which to draw out *fdn.* in the supers. If they can only be started, at the outset, to working with a "boom" in the sections, there will be no crowding of the queen, nor building of drone comb, unless the queen is about to be superseded. Mr. Bass made the mistake of using too large a brood-apartment.

I guess you are right, friend Root; the matter is more complex than it appears upon the surface, and the publication of a few short articles scattered through the various journals does not present the subject in the best possible manner; and I am going to thankfully accept your suggestion and "roll up my sleeves," *mentally*, clear up to my shoulders, and write a little book covering the whole subject of comb-honey production, as I practice it, and have it published in time for use next spring.

W. Z. HUTCHINSON.

Rogersville, Mich., Jan. 7, 1887.

CAN BEES FROM TWO DIFFERENT QUEENS WORK HARMONIOUSLY IN THE SURPLUS-BOXES?

I have received the first three numbers of *GLEANINGS*, and must say that I am well pleased with it, as an exponent of advanced apiculture. I wish to ask two questions. First, if I make my hive long enough to hold 16 frames (Gallup), and put a solid division-board in the center, with perforated zinc honey-board over all, and two entrances, one on the south and one on the east, the queens being thus confined to their respective chambers, would the bees work agreeably in the upper story of the hive? If so, would there be any advantage in such procedure? Second, are bees more liable to store pollen in sections 1½ inches thick than they are in thicker ones?

J. M. CRUICKSHANK.

Lyons, Ontario, Canada.

The plan you give will not work with any certainty for any length of time, friend C. During the rush of the honey-season, bees from different hives *may* mix up indiscriminately; but as soon as the honey-flow is

over, one of the queens will be balled, and you will eventually have but one swarm of bees. The matter has been thoroughly gone over by having division-boards that shrink, and letting the bees pass through or over them. I think likely the queen would be more apt to go into the sections where the latter were so much nearer the thickness of an ordinary brood-comb, although I have not tested the matter from experience. Can any of the friends inform us?

ALSIKE CLOVER FOR THE SOUTH.

I see in *GLEANINGS* that you advise Southern bee-keepers to plant alsike clover to better the quality of Southern honey. Will the clover do well here? Will the Chapman honey-plant do? My place is on the Brazos River, subject to overflow occasionally. Will the clover stand it? I saw Dr. O. M. Blanton's report (*GLEANINGS* for Nov. 1), and he says cypress barrels are the best that he has ever used. Won't the honey taste of the cypress, and ruin the sale of it—if there is any? Dr. B. is an old bee-keeper, and should know. Won't iron hoops do on the cypress barrels, as well as wood? C. F. Muth's price for oak barrels is \$2.00, without any inside coating or paint. They cost here about \$3.00—too much. I find that people don't want to pay for barrels or any other vessel. I receive letters wanting me to ship honey to them on commission, one from Chicago; at the present prices the freight would cost more than the honey would sell for. Some of the parties writing don't give references.

J. W. PARK.

Columbia, Brazos Co., Tex., Dec. 24, 1886.

Friend P., I can not tell you whether alsike clover will do well with you or not. It can be settled only by experiment. But I think you can be sure of this, any way: It can be raised in any locality where red or white clover will grow.—The supposition is, that the Chapman honey-plant will grow anywhere—or, at least, I should feel safe in saying in any place where thistles will grow.—I am not acquainted with cypress for barrels. Will Dr. Blanton tell us about it?—Be very careful about shipping honey—not only to *whom* you ship, but ascertain beforehand, as near as possible, whether the transaction promises to be a paying one. I understand it is not very unusual for commission-men to sell goods for only enough to pay freight, cartage, and commission; and I have known of some commission-men who were very cool about such transactions. It seems to me a fearful way to do business; and if any commission-man has any regard for his patrons, it seems to me he should manage in some way to avoid having goods shipped him, to meet such a fate as this.

HOW TO EMPTY THE HONEY-SACK, WITHOUT INJURY TO THE BEE.

I have often noticed, by writers in bee-journals, and some, again, quite lately, in *OCT. GLEANINGS*, as well as one number of the *A. B. J.*, where bees are dissected for the simple purpose of getting their honey. As this is not only a tedious and unnecessary operation, and, for that purpose, imperfect, I beg leave to inform the readers of *GLEANINGS* of a better and more simple way, and one, also, which will spare the bee from any harm. Take the bee the usual way, with both wings be-

tween the thumb and first finger of the right hand. The bee will then put out its sting. Now press the sting gently against something hard—wood or glass: keep on pressing, and keep her as straight as possible. Her extremity is thus made to press against the honey-sack, which compels her to force up to her mouth whatever she has, honey or water, and show you the drop, large or small, between her mandibles. This can then be taken from her with the head of a pin or a pen-knife point, in the left hand, for examination, and the bee left to go for more. If I want to only see the honey or water, I press her against my left thumb-nail, let her swallow it back, and let her go. Several bees can be examined in a minute, as they come dropping on the alighting-board, if desired. C. H. LUTTGENS.

Hammonton, N. J., Dec. 21, 1886.

If we understand you, friend L., your plan is something like the closing-up of a telescope. The abdomen of the bee is contracted lengthwise, producing a pressure upon the honey-sack, causing its contents to be forced out. The idea is certainly an ingenious one, and the bee-keepers owe you a vote of thanks, especially since it helps us to preserve the lives of our little pets. I have seen men take up their beautifully marked Italians as they came in laden from the fields, and coolly disembowel them; but I confess, my opinion of a man who does this falls a notch or two, in spite of myself. I have many times been very anxious to know what the bees were gathering, but I did not like to kill a bee to find out. Once, after I had watched nearly half an hour to satisfy myself, I saw a bee alight with muddy feet, and then I guessed they were carrying water, and I traced them directly to the brook. By means of your invention I could have satisfied myself in an instant.

A PLEA FOR THE SABBATH: HOW TO MAKE SUNDAY SWARMS COME OUT ON SATURDAY.

Several years ago, when I first began keeping bees, I was too ignorant of their habits to make artificial swarming a success, and knew no other way to care for natural swarming than to watch them "through thick and thin," Sundays and all days. Later on, I began to watch only at such times as colonies were about sealing their queen cells. After two or three years my stupid brain took in the situation, and since then I have not stayed at home on Sunday to watch bees. Bees swarm with the sealing of the cells or first cell. Knowing this I keep cells built, during swarming time, from my best queen in a manner costing no extra time or queenlessness of stocks—always, however, being careful to keep the dates, so as to know when a cell will hatch. In order to prevent swarming on Sunday, I look the bees over on Friday about noon. The experienced eye will detect at once such colonies as will be ready to cast swarms in 2 to 4 days. To such give a sealed queen-cell, slipping it between the frames, and on Saturday you may expect, almost with certainty, a swarm from that hive. I give this for those who, like myself, are obliged or prefer to have a day to themselves occasionally, and leave the apiary alone. This method is quick and effectual, Italianizing from your best queen at the same time; and last, but not least, having the Sabbath to yourself. This plan is original with me,

yet I doubt not others have thought it out as well; yet I have never seen it in print. I usually clip my queens' wings. C. M. GOODSPEED.

Thorn Hill, N. Y., Jan., 1887.

Your idea of obliging swarms to come out when you wish to have them do so is not entirely new, friend G. I know it will sometimes work as you say; but it is my impression, that a good many times it will not. We shall be glad to hear from others who have tested it.

QUEENS BY SPECIAL DELIVERY.

As the delivery system has been extended to all mail matter as well as to all postoffices, it occurs to me that it will be a good thing for queen-rearers as well as for the purchasers. When any one orders a queen, he, of course, wants her as soon as possible. Now, by sending ten cents in addition to the price of the queen he would get her just as soon as she can possibly come through the mails; and if he lives within the delivery of any free-delivery postoffice, or within one mile of any post-office, it will be delivered to him at once by a special messenger (see "Notice to Public," from P. M. General, posted in all postoffices). There are some whom this would not benefit very much; viz., those that receive only weekly or semi-weekly mail; but I think the majority of the purchasers would be benefited by it. Ordinary fourth-class matter is not attended to in the mails until the first-class has been disposed of, therefore it is more liable to mis-carry; but fourth-class matter bearing a special-delivery stamp will be disposed of before ordinary first-class matter, thereby going through with the greatest possible dispatch.

What do you think of it, Mr. Root? Why not say, in your catalogue, that, if ten cents in addition to the price of the queen is sent, you will send her by special delivery? As the queen-trade is over for this year it may come good next year, provided you approve of the suggestion.

S. E. MILLER, P. M.

Bluffton, Mo., Dec. 4, 1886.

Friend M., this matter has been suggested before; but before putting it in the price list, let us have some experiments to see just how it works. No doubt it will many times prove quite a convenience.

DOES THE BUSINESS OF HONEY-PRODUCING PAY?

I wish to ask a question or two concerning bee culture.

1. Is it your candid opinion that the bee-business, when strictly confined to the production of honey at present prices, can be made a success financially?

2. How many colonies of bees will the flora of any one locality support profitably, where there is considerable woodland, and where the white clover abounds in its season? I see there is considerable controversy on this subject, some maintaining that less than 100 will sufficiently stock a district bounded by the distance of flight of the bees from any given place in the working season, while others claim that many more may be profitably kept. I think that, with your experience, you will be able to answer the questions satisfactorily. RICHARD L. CLEGG.

Peoria, Union Co., O., Dec. 20, 1886.

Friend C., I do not know how it is possible to answer such questions as yours. It is just like asking if the strawberry business pays. The answer would be, with some

people, that it pays splendidly; but with a great many, perhaps it does not pay expenses. Again, no one can tell what a locality will do until it has been tested, and this applies both to soil and climate. By reading the reports given in every number, you will see that the bee-business pays *some* people. We also try to have reports in every number, from those who do not make it pay. In regard to the number of stocks in any one locality, it is rarely profitable to keep more than 100 in a place; yet very good results have been made from 150 and sometimes 200 on one spot. I am of the opinion, however, that 50 colonies will gather more honey *per colony* than will a larger number.

AN APPEAL TO THE HONEY-BEE.

Pretty little busy bee,
Don't you make yourselves so free,
Raising cane among your neighbors
With your tiny pumps and sabers;
Going into people's houses,
Crawling up the legs of trousers,
Getting your protectors blamed—
I should think you'd be ashamed,
Stealing sweets from choicest fruits—
Better stop, you little brutes.
Better spend your leisure hours
Pumping nectar from the flowers—
See what a rumpus you are raising
By your everlasting hazing.
Now can't you look this matter over
And get your nectar from the clover?
There's lots of room in fields and glen—
Go there and get your honey, then,
And don't be putting on such style—
Quit buzzing people all the while.
I'll try you just another season,
And see if you have any reason;
But if you've not, I'll not abhor you,
But have a little reason for you.

J. K. SWIPES.

PHENOL AN EFFECTIVE CURE FOR FOUL BROOD.

If you feed your bees in the early spring, to promote breeding, or even if you do not, make candy as per the A B C book; and when making it, add to it the proper proportion (I use 1 in 700) of phenol, as given by Frank Cheshire. Place the same on top of frames at the proper time, and note the results. In my experience every vestige of the disease will have disappeared unless the colony was too far gone. Please try it, and report for the benefit of others. When I first took up bee-keeping I was very enthusiastic, and wrote considerably for the bee-papers. Well, my friend, let me tell you that, though I have had considerable experience since then, I don't know as much now as I thought I did then; and, though I am learning every day, yet I don't feel so much like rushing off to print it as I did. A BEE-KEEPER.

A PUMPKIN BEE-HIVE.

We take the following from the Santa Maria (Cal.) *Times*:

One day this week Mr. Shuman, who resides a few miles west of town on the Guadalupe road, was gathering his pumpkins. He placed one on the wagon, from which he noticed bees issuing. Examination revealed the fact that the interior of the pumpkin was full of honey; in fact, it was a veritable bee-hive. The bees had gained access through a crack in one side of the vegetable, and had taken up permanent quarters. Mr. Shuman took out eight pounds of fine honey. Is there any other land under the sun where the farmer can raise his own pumpkins and honey on the same vine?

Perhaps some of our older readers remember this matter is not new, after all. Some years ago the matter of having bee-hives made from the sugar-trough gourd was discussed. Surplus-honey receptacles were to be made of small gourds stuck to the side of the larger one, at the proper point. We should then have not "sugar in a gourd,"

but honey in a gourd. Probably gourd bee-hives can be produced cheaper than any thing else—that is, if we were going to discard movable frames.

A COLONY OF BEES IN THE OPEN AIR, WITH THEIR COMBS FASTENED TO GRASS AND WEEDS.

Inclosed, a dollar you will see.
For which send GLEANINGS here to me.
By experience, I have found
It is useful, the year around.
In winter, spring, and summer too,
It will tell us what to do.
It also tells us where to find
Queens and supplies of every kind.

In the August No. we read a short but interesting account of "How Bees Work in the Open Air in California." It reminds me of the work of a colony in Northern Indiana during the past season. Instead of building their combs to the limb of a tree, they made their house in the tall grass and weeds. The combs were attached to and suspended by only grass and weeds, and the outer ones were built so as to partially protect the inner ones from rain, etc. Of course, this answered very well for summer, but I am afraid they are not provided with very good winter quarters.

DOES COLOR IN CLOTHING ANGER BEES?

A few years ago, when I first caught the bee-fever I visited the apiary of a German bee-keeper at Valparaiso, Ind. He had in the yard at the time, 90 strong colonies, mostly hybrids, and I thought them about the crossbred bees I had ever met. I had hardly stepped out among them before they commenced operations on me; and as they went at me in force it is hardly necessary to say I retreated. My friend dropped a hint then which I have never seen expressed in a bee-journal; but from experience since, I believe it to be true. He said, "Didn't you know dat bees shust hate black clothes?" He always wears a light-colored suit while working in the apiary, and gets fewer stings in consequence.

Westville, Ind. E. L. REYNOLDS.

G. M. DOOLITTLE, AND HOW DOES HE WORK OVER THE HIVES?

Inclosed find \$1.00, for which please send GLEANINGS for 1887, as I can not get along without it. I like the picture so well in GLEANINGS, "The Apiarist at Work," that I can not help asking Mr. Doolittle to send his picture and a cut of his apiary, with him sitting on his work-bench. Any way, I should like to see 280 lbs. at work.

Bees have, so far, done well on their summer stands. They are snowed under at present, but I hope they will come out all right. J. C. MISHLER.

Ligonier, Noble Co., Ind., Jan. 6, 1887.

If friend Doolittle will comply, we will have an engraving made to satisfy friend M. and others of our readers.

FROM NORTHWEST MISSOURI.

I commenced the season with 48 colonies, two of them queenless, 5 or 6 weak, the rest from medium to good. I increased to 75, and obtained 5600 lbs. of honey—150 lbs. of which was in sections. I have about 350 lbs. on hand yet. The rest is sold at an average of 10 cents a pound. My bees are well supplied with natural stores. I never feed sugar unless my bees are short of natural stores. We have a very good country here for bees, and bee-men are scarce. I know of some very good locations in this part, and cheap, compared with most places in the North.

L. G. PURVIS.

Forest City, Mo.

SWEET CLOVER AS A TREE IN TEXAS.

Editor Gleanings:—You doubtless remember a note I sent you in October, about a plant which grows along the cliffs and rocky lands of our country. I also sent with the note a branch and blossom of the plant, or tree, you might call it, and asked you to name it, but you seemed to be surprised that I didn't know it was nothing but common sweet clover. Well, it's true that I never saw any sweet clover to know it, but supposed it was a weed or grain. For fear you might have made a mistake, or that you did not take much time to examine the branch sent you before, I send you a block of wood sawed from one of the branches, and I ask you to reconsider the matter, and see if you can find a name for it. It grows from six to ten feet high, and is sometimes large enough to make fence-rails out of. The timber is very hard and durable. The shoots are very straight, and often, while out hunting, I have used them for ramrods for my rifle.

J. P. CALDWELL.

San Marcos, Tex., Dec. 6, 1886.

In reply, I wrote friend C. as follows:

I never saw any sweet clover with a stalk as hard as the sample you send; but as it has the very familiar taste of the plant, I think there is no question but that it is the same thing we have here. With us, however, it always dies down in the winter. Do you mean to say that with you the same stalk grows year after year like trees?

Certainly, the plant grows year after year, like any other tree or bush. The blossom is very fragrant, and the mountains are strewn with its delicious flavor twice a year.

J. P. CALDWELL.

San Marcos, Tex.

From the above it seems there is no question but that sweet clover, in climates sufficiently mild, changes its habit to that of a hard woody tree. I presume the leaves, of course, drop in the winter time. The next question will be, Is it still a good honey-plant? If I am correct, with us it frequently produces two sets of blossoms in a season, especially where a severe drought causes it to drop its leaves and dry up.

HONEY FROM HARD MAPLE.

The honey I sent, I think no doubt was obtained from hard maple, a part of it. I had no honey-dew honey—never have had in this State. I get some of the same kind every warm May. The largest colonies get it—the small ones, never. This year I extracted the first of it the fore part of June. Next year I will watch and make assurance doubly sure.

We have much maple timber near us, and we have large colonies early enough to gather it, and I think we fail only when the weather is too cool for bees to work, or the colonies are too small to get it. All my bees wintered in the cellar, and were not brought out till April 15. I failed to get any to show. Their brood probably used up all they obtained.

We regard our last season's experience as 10 lbs. per colony in favor of outdoor wintering, on account of this early gathering. Another spring may not so prove, but we shall see; 80 colonies are now in the cellar, as nice as can be—have been in just a month; 115 are outdoors, which had a nice fly Dec. 11. I have no doubt my outdoor bees will

surpass my cellar bees in early honey by more than 10 lbs. next year.

T. F. BINGHAM.

Abronja, Mich., Dec. 20, 1886.

The subject of hard maple came up at the Michigan Convention, and I asked friend B. to send me a sample of the hard-maple honey. I thought perhaps it might be something like maple molasses; however, it tasted to me more like honey-dew; hence my suggestion, and the above is friend B.'s reply.

HOW TO MAKE MILK PAINT FOR COVERING HIVES, ETC.

I have been reading part first of *Our Homes*, and have commenced making drains, foot-paths, and cisterns, as per your directions. I should like to know just how you make the milk paint that stands so well; also directions how to make the very best kind of cistern for greenhouses. I have only one colony of bees left. I lost all the others by foul brood. I am very busy now with the greenhouses—no time for bees, but expect to try them in a cucumber-house before long.

E. GRAINGER.

Toronto, Ont., Nov. 23, 1886.

Friend G., milk paint is made by stirring water lime, such as is used for cisterns, in skimmed milk. If you can not get skimmed milk, use sweet milk. It will be much cheaper than paint; and if put on new rough boards it will stand for years. If the boards are old, and have commenced to decay on the surface, it will peel off, taking the old surface with it.—I should enjoy hugely taking a peep at your cucumber greenhouses.

THE LOW PRICE OF HONEY, AND ITS COST OF PRODUCTION.

I can not forbear letting you know how well I like GLEANINGS. I take several very interesting papers; but when I get GLEANINGS they all have to wait until that is read, even to the advertisements, for I am always anxious to know all that is going on in the bee-world, even to who has got something to sell, and what it is.

I should like to say a few words on a subject that is being ably discussed by several of our leading bee-masters; namely, the low price of honey. In the years gone by, bee-keeping has been highly profitable where any effort was made to make it so, and why? Simply because it was not very much of a business in those days. There were but few specialists then in the business; the farmers produced the most of the honey-crop, and but a comparatively small amount was then placed on the market, and it brought fancy prices. Now the large numbers of specialists engaged in the business are placing so many thousand tons of honey on the market that bee-keeping is being forced down to a business basis, and I do not think it is quite down yet. In the near future I expect to sell a nice article of comb honey for 10 cents per lb., perhaps for eight; but if I can get to winter my bees successfully, I am satisfied that I can raise it for that at a profit.

G. E. HUTCHINSON.

Rogersville, Genesee Co., Mich.

May I caution you a little in regard to being in too great hurry to get the price of honey down? It will get down fast enough without any such suggestions as you make. I think you will find it close enough work to produce comb honey at 12½ cts. wholesale, to

say nothing of 8 and 10 cts. Enthusiasm is a good thing, but it does not always pay debts and get us out of cramped places.

GETTING THE MOTH OUT OF COMBS BY MEANS OF SUN HEAT.

Moth worms may not trouble you any, but here they are very troublesome as soon as the combs are away from the bees. Picking them up with a pin is a long job, and sulphur fumes are not always handy. As there may be some who, once in a while, will have combs with worms in, I will give you my way of killing them.

When the sun shines bright and warm I take my combs, two or more at a time—this depends on how warm the sun is, and set them where it will shine directly in the cells. In a short time the worms will begin to hunt the shady side, when I turn the combs over and repeat the operation till the worms have all left, or are dead. By being careful, not a cell will be injured, even if the sun is warm enough to melt the comb entirely, if left a few minutes too long.

AUG. LEYVRAZ.

Francis, Fla., Dec. 24, 1886.

I have noticed, that when combs were set out in the sun, the worms crawled out of the cells, but it never occurred to me before that it was the heat of the sun that made them vacate. If your plan will scare them all out, it is certainly quite an item, especially where black bees are kept.

TENEMENT PLAN OF WINTERING.

When spring opened last season, we had 58 colonies with which to begin the season. Fifty of the number were in good condition to gather honey. Our crop, 3000 lbs. of comb honey in one-pound sections, and 1500 lbs. of extracted, was of extra quality.

Twenty-three colonies were wintered in chaff bee-houses, made to winter four and eight. They came out in fine condition. I think this plan of outdoor wintering is one of the cheapest and safest plans known, and one of the most convenient. As they are made adjustable, all bulkiness of hives in the summer time is avoided, and they are also a great protection in spring, against the cold wind. My apiary of 123 stands will be arranged on this plan in fours, two facing the east and two facing the west.

We have tried to see how much honey we could sell here at home, and I think we did well, considering that the number of inhabitants is less than one thousand. When we began to sell honey we held ours at 15 cents. In a short time the farmers began to bring in honey, selling it at 10 cents in the comb, but we have managed to get 10 cents on an average for it, and have sold 1500 lbs. at home, and expect to sell more. W. S. DORMAN, 58—123.

Mechanicsville, Ia., Jan. 12, 1887.

LICKING STAMPS.

See here, friend Root; don't object to people rubbing postage-stamps on their hair, as Mr. Waller suggests at the bottom of page 27 of GLEANINGS for Jan. 1, to prevent their sticking together. Your objection is, that if hair-oil is used the stamps will be greasy, and won't stick, and that "t'other fellow" might "lick his tongue on the stamp after it had been rubbed on greasy hair." Now, a better way is to not have that "t'other fellow" nor any one else "lick" postage-stamps at all. Sometimes

they get licked too much and don't stick well, and get lost from the letter or package. Just let them, that is, that "t'other fellow," and everybody else, lick, or wet the corner of the envelope, and then place on the stamp without "licking" it. If one has lots of letters or circulars to stamp, just lap a lot of them, leaving room for stamps uncovered, and, with a small wet sponge or cloth, wet all at once, and then put on a large number of stamps in a twinkling.

A. B. MASON.

Auburndale, O., Jan. 3, 1887.

NOTES AND QUERIES.

WILL BASSWOOD GROW FROM CUTTINGS?

WILL linden (basswood) grow from cuttings? If so, when should they be cut, when planted, and how should they be treated, from beginning to end? Will they grow as fast as cottonwood?

U. H. WALKER.

Sabetha, Kan., Jan. 10, 1887.

[They will grow from cuttings, but it requires an experienced hand to do it. The subject is fully treated in our back numbers. I think they will grow fully as fast as cottonwood. The cuttings require a special treatment that makes it somewhat expensive; and as seedlings are offered for \$10.00 per 1000 or less, the decision was that it would not pay to grow cuttings.]

ALSIKE FOR PASTURAGE.

Alsike makes splendid bee-pasture. It is hard to beat for hay for horses or cattle. They prefer it to any other hay.

S. H. F. SCHOUTE.

National, Iowa, Dec. 29, 1886.

AN APIARY NEAR WATER.

If an apiary is located near a river or lake, or on an island of 10 acres, would many of the bees be drowned?

CHAS. F. CLARK.

Cokeville, Wyo.

[Unless there are high winds or stormy weather, we think there will be very few bees lost, under the circumstances you mention; in fact, a few colonies have been kept under similar circumstances, with very good results.]

OMITTING SEPARATORS, ETC.

Please let me know if the criticisms of some friends against the practice of omitting separators between section boxes are well founded when the boxes are notched all around, as lately suggested, and I believe practiced, by friend Foster.

Knoxville, Tenn., Dec. 7, 1886. ADRIAN GETAZ.

[My impression is, friend G., that even with friend Foster's plan of working, we can not afford to omit the separators, if we want to have real nice straight honey.]

A REPORT IN REGARD TO BARNES BROTHERS' FOOT-POWER BUZZ-SAW.

I bought a new combined Barnes machine, with treadle, and a crank attachment. It was the fourth machine I have bought of their make. It is very much better than the old combined. I have used both.

G. M. MORTON.

Smithboro, N. Y., Nov. 27, 1886.

I should like to ask Ernest if he introduces virgin queens to nuclei in the same way as described on page 1000, Dec. 15.

GEO. W. COOK.

Spring Hill, Johnson Co., Kan., Dec. 22, 1886.

[I have never tried introducing virgin queens by the Peet process, as described in Dec. 15th issue, but I presume that it could be done. D. A. Jones claims to do it successfully; and if it can be done at all, I believe that the Peet cage will do it successfully.]

THE CHAPMAN HONEY-PLANT.

We find the following paragraph in the *British Bee Journal* for Jan. 6:

We may here mention, that Mr. Cowan informs us that he has grown *Echinops Spherocephalus* for eight or nine years, and classes it high as a bee-plant.

CAN FOUNDATION GIVE FOUL BROOD?

Don't you think foul brood can be spread from foundation made from diseased comb?

CHAS. H. VAN VECHTIN.

Victor, N. Y., Nov. 22, 1886.

[I do not believe it possible, friend V., for foul brood to be communicated in the way you mention. In making foundation we always melt the wax, and the temperature of melted wax is death to any fungoid or animal life.]

HOW \$3.75 INCREASED TO \$15.00.

I want to tell you about my bees. This summer, the last of June, I bought 1 lb. of bees and a queen, and put them on 10 frames of old comb, and they are a nice large swarm, now worth \$15.00, and they cost me only \$3.75 for bees, queen, expressage, \$1.00 worth of sugar, and my time. Pretty good, isn't it? Jackson, Mich.

CLARENCE W. BOND.

THE BARNES SAWS.

I write you in regard to the Barnes foot-power saws. Do you think I could saw four-piece sections with it? White poplar is what I intend to use. I am a rather stout man.

W. D. SOPER.

Jackson, Mich., Dec. 8, 1886.

[Yes, friend S., you can saw four-piece sections with the Barnes foot-power saw; but I think that, even if you are a stout man, you would begin to think of an engine before you had sawed many thousand, especially if you try to produce them at the figure they are now advertised. If you think best to try it, we should like to have a report from you in regard to the matter.]

FINE WIRE FOR SEPARATORS.

Have you ever tried fine wire stretched on your broad frames, about $\frac{1}{4}$ of an inch apart, for separators? I can't see why it would not answer, and be no hindrance whatever to bees passing in any direction through the openings in the sections.

D. S. BENEDICT.

Ludington, Mason Co., Mich., Dec. 20, 1886.

[We have never tried fine wire, friend B., although the matter has been suggested before in our back volumes. The difficulty of putting them on and keeping each one of them stretched tight is what deterred me from testing it. Besides, after we got them on, unless the wide frames were handled very carefully they would be very easily injured. If any of our readers have ever tried it, we should be glad of a report.]

A HONEY-CUPBOARD—HOW TO MAKE.

Will you please inform me how to inclose a honey-cupboard? I am making one to hold about 1000 lbs. of comb honey. A show-case will form the top to hold sections or prize boxes. Would you inclose the lower part with wire screen, to keep air to the honey, or with lumber?

F. S. THORINGTON.

Chillicothe, Mo., Dec. 2, 1886.

[Friend T., I believe it is not usual to keep such a quantity of honey in a cupboard; and before we can tell whether it had better be inclosed in a wire screen or lumber, we should like to know something about the room that contains it. If the room is one where it does not freeze, and the air is comparatively dry the year round, wire cloth would perhaps be best; but if there is danger of frost enough to make a precipitate of moisture on the surface of the honey, you had better shut it up as tight as you can, with boards.]

REPORTS DISCOURAGING.

THE HONEY SEASON OF 1886 ON THE LOWER MISSISSIPPI.

MR. EDITOR:—The honey season of 1886 is past, and for this locality I have to record an almost absolute failure. I began the season with 125 colonies, very strong.

A cold spell in April struck the apiary, and all of the strongest colonies were left with chilled brood. I lost over 20 colonies from this cause. Those hives had from nine to thirteen combs filled with brood, and did not have bees sufficient to cover the combs during the cold spell, and the brood died from cold; hence I had not one fair-sized swarm during the entire season. The cold, late, and wet spring hung on so late that I got only two barrels of white-clover honey, of a very dark color, with my 125 hives, compared with the $11\frac{1}{2}$ barrels of fine white-clover honey from my 67 hives the previous year. The bad weather hung on all season. The weather was so cool and damp that honey secretion was almost entirely suspended. My bees nearly starved during August, and only the strongest were enabled to raise brood enough to carry themselves over winter. Those deficient in brood late in the fall are dying off very fast, owing principally to the warm winter weather we have had so far. The bees will fly out and get chilled and are lost, thus depleting the hive of the bees so necessary in spring. Where this dwindling is going to stop, I can't say yet. I have carried in, so far, 15 empty hives. Almost all have plenty of honey, and none are in need, but the bees would be so few that they could not hold out, and died, in some hives, with honey all around them.

I put by, for winter, 85 colonies, left from the 125. I began the season with 70, and have that many now, some of which are very good, and many very weak. The warm winters are a great drawback to bee-keeping here. If it would get cold enough to compel the bees to stay in the hives till spring, one would have full hives of bees to begin business with; but the warm days allow the bees to fly out and get lost, and to wear themselves out with exercise in the hives; and, as a result, only the strongest hives, with an abundance of late-hatched bees, will be strong in the spring. How many more colonies will die out before March, is a question I can't answer. They don't want feeding, as they have plenty of honey, but many of them do want bees.

My yield last season was 35 lbs. of extracted honey per hive. This, with a loss of 55 colonies, and New York and Milwaukee for my markets, and a net price for my honey of a little over 4 cts. per pound, does not conduce to make me liable to lose my mind in my enthusiasm over bee-keeping in Louisiana—at present, at least. When I read of Dr. O. M. Blanton's little report of 70 lbs. per colony and 60 barrels, I felt he ought to be ashamed to complain. What would he do with only 35 lbs. per colony? I have tried to look somewhere for the traditional ever-present silver lining, but I haven't seen it yet. It may yet come from behind the plainly visible, lowering, dark-gray storm-cloud gathering in the west; and when that passes by I may look again upon pleasant sunny weather with my bees. In the meantime, I'll wait and see.

Hahnville, La.

3—C. M. HIGGINS, 125—70.

MYSELF AND MY NEIGHBORS.

And why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?—MATT. 7:3.

IT was at the close of the Sunday evening prayer-meeting, and my sister was speaking about the revival held at one of the other churches in our town. She said the pastor of that church had wondered I had not been present, for he supposed, from what he knew of me, I could not stay away when a revival was going forward. As it was near church time I passed along with the crowd and was soon seated right in front of the pulpit, the usher probably thinking that there was where I ought to be. The revival work was conducted by a lady. I had heard her speak once before on temperance, and I was not very favorably impressed with her abilities. As an illustration, among other points she made she called attention to the fact that farmers have much more trouble in getting their corn to come up in the spring, of late years, than they used to have. I am well aware of this, and our agricultural papers have discussed it. But the speaker gave as a reason, that it was God's judgment on the farmers for selling their corn to the distillers. As she stood before me that evening my mind reverted to the incident above, and I could not or did not have very much faith in her ability to lead souls to the cross. As I looked about among the people that were gathered before me, without hardly knowing it I was encouraging a disposition to criticise the friends and neighbors around me in the same way. The large church soon became very much crowded, and seats were placed on the platform, close up to the pulpit, so that many faces were before me, and a grand opportunity was afforded for studying humanity. I profess to have much charity, and love for unity among the churches, and I have often exhorted toward this same charity and love for our neighbors among the various churches of our town. But this evening it was very natural to see faults, not only among those of my own sex who had gathered there in their Sunday best, but even among the young people of the opposite sex. I have before alluded to this temptation of mine; and as it comes up every now and then, I presume it must be one of Satan's strong points with my poor self.

During the first half of the sermon I found fault with most that was said. The text was "Eternity," and the speaker pictured hell in horrible colors. She said eternity is so great, that, if a bird could fly from the sun to the earth, and take a grain of soil in its bill and fly back again it would, in the process of time, carry this whole earth to the sun; but this great period of time would be as nothing compared with eternity. The thought was, that everlasting punishment would be ages and ages longer than the lapse of time illustrated by the above figure. I want to say here by way of parenthesis, that, to *my way of thinking*, such illustrations are not wise or in good taste. It seems to

me we are transgressing on the domain of the Almighty when we use figures of this kind; and very likely I shall always think so, even though it is a fact that ministers of various denominations are in the habit of using such figures quite often.

She changed her theme toward the close, and her talk fell in with my line of work. She spoke of visiting the jails and prisons, and finally I so heartily indorsed the grand points she made that I should have felt guilty had I kept silent. I added emphasis to one of her remarks by an earnest "Amen." Now, please have charity for me when I tell you that, heretofore during the sermon, I had, much of the time, turned my eyes away from the speaker. I disliked her, and her face was not pleasant to me. After that indorsement by the amen, I began to see something different in her expression—something that was pleasant and attractive. Christ's spirit seemed to shine forth from her countenance. Soon after I caught a glimpse of some of the faces near her. How strange! Christ's spirit seemed to shine forth *now*, from those faces also; and as I looked about me the whole audience had been transformed. Instead of narrow-minded people, and people whose faces showed a lack of intelligence, I beheld humanity in the likeness of God the creator. Had *they* changed under the influences of the earnest preaching? Why, bless you, no, dear reader; *my own heart* had changed, and the people and the speaker were exactly as they had been. Christ's spirit had *finally* found a lodging-place in my own heart; and is it at all wonderful that I loved everybody? Their faults and imperfections had faded away off in the distance, and the charity and love in my own heart enabled me to see their lovable traits, and the God-like part in them all.

The services lasted a good while, and it was late when I got home; but for all that, as I told my wife about the meeting, and knelt by our bedside, I prayed that this better spirit might go with me through the coming week. That prayer was answered. Are not *such* prayers *always* answered?

I want to stop a minute, however, before considering that coming week. Others may have felt like criticising our public speakers and evangelists in the same way I have mentioned. Well, suppose our sister *did* say that it was selling corn to the distillers that caused the trouble with the seed corn; and suppose, too, she *did* picture eternal punishment in such awful colors as to frighten the youngsters, who shall say her figure was overdrawn? Ask our best thinkers of the day how terrible are the consequences of choosing evil rather than good. I have seen men deliberately decide to follow Satan. I have seen them go down step by step. I do not know where the end will be, but I think it very likely that neither *human tongue* nor *human imagination* would be able to picture the terrible consequences of such a choice. Why, then, should I find fault with the speaker?

Among the thirty or forty that gathered to the anxious-seat at the close of the meeting, there were a good many children. There

was one boy who used to swear on the streets so fearfully that the neighbors all felt troubled about him. There he stood right before me with penitential tears in his eyes; and when the speaker, in motherly tones, gave him Christian counsel and encouragement, I inwardly prayed that God might spare and bless her even more abundantly. When I saw the teachers from our public schools join in the work, and come forward to the anxious-seat to exhort and encourage their pupils whom they found there, I said in my heart as did Jacob, "Surely the Lord is in this place."

I felt the influence of that meeting during the whole week. During the first day of the convention at Albany, the low price of honey was discussed, and several of the honey-producers felt as many of our farmers do now, a little sore about the price they were receiving for their products, and they very naturally felt like blaming somebody. One speaker made some remarks in regard to the middle-men and commission-men. Another suggested that the latter were a useless class, for they get all the profit while we do all the hard work. A third condemned them as a whole, and some of the terms he used were not very complimentary. I began to feel that they were getting into the same spirit I was when I first sat down in that revival meeting, and it seemed to me as if God called on me to enter a mild protest. They readily gave me the floor, and I asked if it were not probable that there are good men and bad men among honey-dealers as well as among honey-producers.

"Dear friends," said I, "let us be careful how we condemn indiscriminately any class of people; and, above all, let us not say unkind things of any brother *behind his back*. If a bee-keeper has plenty of time, and with it the ability to retail his honey, or to furnish it in any way directly to the consumer, *by all means* let him do so; but if he has other business that pays him fair wages, and if, like many of us, he has discovered that he has no talent for *peddling* and selling in little dribs, by all means let him employ somebody who *has* this talent, and then every thing will be pleasant and there will be harmony. If a middle-man pays him so little that he can not afford to employ him, it is his privilege to trade some other way. If the commission-man he selects fails in selling the honey at the price wanted, try some other *man* or some other *way*; but through it all, let us have charity."

There was another thought I did not give then, because I did not wish to take up so much time, but I will give it here. At the convention, middle-men were accused of *doubling* on the honey, when they buy, and sell at *wholesale*. This may be true in some instances, but I think not often. Middle-men often have many vexatious losses as well as ourselves. A. C. Kendel, of the Cleveland Seed Store, invested several thousand dollars in a cold-storage room of the most approved construction. The very first year he tried it he lost \$2000 clean cash; he lost it, too, I verily believe, in trying to help farmers and producers, by taking produce when the market was glutted, rather

than have it a total loss to the producer. During the present winter, however, with the benefit of the experience of the year before, he has succeeded so finely that he has already pretty nearly or quite made up for the losses of a year ago. At the Forest City House, where we took dinner, grapes and other fruit were on the table, from his cold-storage room. They were as fine in the middle of January as any fruit I ever ate at any season of the year. Now, friends, I have no doubt but that Mr. Kendel is getting twice as much for those grapes as he paid for them; and one who has no conception of the care and anxiety, as well as money it cost to enable him to do this might say, "Just look at it! he paid us only 4 cts. a pound for those very grapes that he is now selling for 10 and 12 cts." The above figures are given at random, only by way of illustration. One thing I do know, and that is, that middle-men are often obliged to sell honey as well as fruit at a great loss; they take risks where they buy things of this kind out of season, and they must have their profits. In my remarks I suggested, if I am not mistaken, that we should invite the honey-dealers to be present at our conventions, that we might hear both sides of the question. About this time our good friend L. C. Root suggested that one evening be devoted to the consideration of the honey-market, and that middle-men, commission-men, honey dealers and consumers, be invited to be present and give us their views. Accordingly an evening was appointed; and as the invitation was given through the press, a large number were present—perhaps 200 or more. During the midst of our talk a fine-looking young man came up hurriedly to the platform, and threw off his overcoat with an air that seemed to imply that he was squaring himself for a fight. His first words were something like this: "Ladies and gentlemen, I am a middle-man;" and then he gave us one of the finest talks in regard to the sale of honey I have ever heard in my life. Some one had doubtless repeated to him the unkind words that were uttered the day before, as seemed evident from some of his remarks. His name is Mr. Henry R. Wright, and his place of business is 328 Broadway, Albany, N. Y. I extract the following report from his talk as given in one of the Albany daily papers:

"I sell honey; I am not a producer. I consider honey a staple, not an article of luxury. I think the low prices due to over-production. I should like to see a uniform style of comb adopted, something like this. [The speaker exhibited an unglazed frame which would contain a comb and about 11 ounces of honey.] Two-thirds of the honey produced is buckwheat. I sell 100 cases of buckwheat to 10 of the others. I sell from \$10,000 to \$20,000 worth of honey a year, and I don't make a specialty of it either. [Applause.] My experience shows that an unglazed package of about 10 or 11 ounces that will sell for 10 cents is the most popular, and if a uniform package of that size could be adopted it would increase the sales of honey, and be of benefit to the producers."

The speaker had a number of the frames of the size shown by him disjointed, and he said any one who wanted one could have it. There was a scramble among the members, and the frames soon disappeared.

The little frames he exhibited were about the width of our one-pound section—perhaps a little narrower. They were oblong, something the shape of a testament, perhaps. He prefers them oblong, because, as he expressed it, it made more of a show of surface of comb honey. The reason he preferred buckwheat to basswood or clover was because it enables us to give consumers a bigger chunk for a dime. His whole enterprise is based on the idea of selling the honey at 10 cts. a cake. I replied to him, and suggested that we use the ordinary Simplicity section, $4\frac{1}{2} \times 4\frac{1}{2}$ in., making it thinner instead of smaller or different in size. But his experience had been entirely with the oblong section. As buckwheat is so rarely in sections in the West, we should probably need to make ours so as to hold a little less than 10 ounces—say 8 or 9 ounces. Mr. Wright told us he had sold from \$15,000 to \$20,000 worth of honey in the city of Albany during the last year, all put up in the kind of sections recommended. He said the supply had been out for some time, and he would be glad to contract for a large amount of this honey for another season. I do not know whether he is prepared to answer inquiries in regard to this matter or not; but I do believe the coming honey-package is something that can be retailed for an even dime. One of the strong points he made on it was, that any average family will eat it all up and "clean up the platter"; there will be none of it left to set away to daub the dishes and draw the flies. Besides, a great part of the laboring population are in the habit of buying their supplies for the table, 10 cents' worth at a time. If you will tell them the price is 12 cents or 15 cents, they won't buy it. If it is only a dime, off it goes. Mr. Wright does not retail at all. He furnishes grocers and retail dealers. I do not remember how many of these 10-cent sections were in a crate, but I suppose it does not matter materially—anywhere from 12 to 24, perhaps. He takes the honey all on commission. Two-thirds of the value is paid in cash to the producer when the honey is laid down, and the remainder when sold. He buys by *weight*, but the consumer purchases, as I have said, by the *piece*. In view of this it is desirable that the sections of honey should weigh as nearly alike as possible; and to do this we shall have to use separators. Now, then, friends, all these valuable points were brought out by a pleasant and friendly talk with one of our much-abused *neighbors*; and the moral to my little story to-day would be this: May be the neighbor whom you are abusing and calling names is this minute both able and willing to help you very materially if you will treat him as you should always treat *every neighbor*.

Since the above was written I have talked with our foreman about this dime section; and as it is very near the dimensions of the sections we make and keep in stock, known as six to the L. frame, perhaps this will be the most desirable size, as it will fit all of our hives and packages. If we are to sell clover and basswood honey for 10 cts. a section, we can not have it contain more

than 8 or 9 ounces; and to do this, the section mentioned above, six to the L. frame, will need to be about an inch in thickness; if separators are used, may be $\frac{1}{2}$ inch. Have any of our readers ever experimented on a section of this size? The comb, you will notice, will be about of the thickness of an ordinary brood-comb. It will be a little card of honey for 10 cts. Mr. A. A. Rice, of Seville, O., has sold sections quite similar to the above. He gets them filled by putting them in an ordinary brood-frame in the lower story or the brood-apartment.

OUR P. BENSON LETTER.

ROOLS FOR SWARMIN BEES.

BEES has to be swarmed evry summer.

Thay cum out to be swarmed of thair own ackord. Moastly on a hot day.

Hwen thay cum out, poot on a overcoat—fur is best. Thay like to feel the soft fur and will role over and over in it, forgittin to sting. Poot on thick woolen mittens and ty a string around the rists. Also ty up the ankels. Poot on a son bunnet and ty it tite around the neck. This will maik you middlin warm.



P. BENSON, A. B. S., REDDY FER STINGS.

Then go out and look if the swarm is still thair. Git three (3) vales and ty over yure son bunnet. If you hed only one (1) vale the bees mite chaw throo it. This will maik you a little warmer.

Tell yure wife to look you all over kind o careful like and see if thair izzent a hole ennywhair whair a bee mite break throo. Then go and git a hive. If you hevvent got enny, that will be better. You ken go over to the nabers to borough 1, & it will amoose the naber's childern to see you drest up so comfortable like. You woont ken git enny to the nabers so you ken cum home on a run and maik 1 out of a old box or nail keg. This will help to warm you. I forgott to say that hooverer 1st sees the swarm cum out must yell for the rest, & all hands must kommens to keep up a noise. The oald wooman ken pound on a tin pale with a pint dipper, another ken bło a horn, and 1 ken jinggel a cow bell, and 1 ken hammer on a tin pan, and 1 ken hammer on another tin pan, & all ken holler, exseptin the horn,

he kant holler. Keep the noise & racket agoins steady. If thay is enny nabers thay cood bring sum moar tin pales & things & maik sum moar racket.

After you git yure box or nale keg reddy, rub on sum tanzy tea. This will help to charm the bees, but I cood sell you a bottel of P. Benson's Bee Hive Elicker that is shure evry time. Another time I will tell you whot els to doo, but keupe up the racket till then.

P. BENSON, A. B. S.

P. S.—Printer poot in that A. B. S. stans for Apiculturalistical Beekeepin Sighentist.

THE CONVENTION AT ALBANY, N. Y.

CONTINUED FROM PAGE 46, LAST ISSUE.

THIS convention was one of the best and most profitable that it has ever been my good fortune to attend. To give in detail an account of all the valuable things that came up and were discussed, would make quite a book in itself, therefore I shall have to notice briefly the most important points.

The question as to what to do with our honey was the most absorbing topic, and there was some considerable complaint of overproduction, but not quite the customary amount of censure because somebody else had done or had not done so and so. Blaming editors of bee-journals for urging everybody to go into the business, occupied a portion of the time. Then came the question, are there too many already in the business? and is it best for some of us to give it up? Mr. L. C. Root, son-in-law of "Father Quinby," as he is called in York State, was one of the bright spirits of the occasion, and I understand he has been one of the old wheel-horses in the convention ever since its start. I learn, also, that Father Quinby was founder of this same convention; that he had met and taken part in its deliberations on the very floors of Agricultural Hall, which we were then occupying. I hope my two good friends, Prof. Cook and L. C. Root, will excuse me for saying that L. C. Root seems to be to the bee-keepers of York State just about what Prof. Cook is to the bee-keepers of Michigan; and I think the inhabitants of these two States may fervently thank God for two such men—men so devoted to the best interests of the youth of our nation; and men, too, who are laboring so earnestly to have godliness and righteousness prevail. Among other good things brought out by L. C. Root was a little talk which he prefaced with the following, in his own words, as nearly as I can recollect.

IS OUR PURSUIT A WORTHY ONE?

"Now, friends, before going very far in this matter of giving up the business because it does not pay, let us look at it a little. Is bee culture a worthy pursuit? Is the industry one we may be proud of? When a young man starts out in any sort of business, if he does not he certainly *should* inquire, 'Is this kind of work laudable, and will the world be benefited by it? Is it a respectable calling?' I am glad to be able to point to you the words of Holy Writ where it says:

Butter and honey shall he eat, that he may know to refuse the evil, and choose the good.

"Now, friends, there is more in this little verse, perhaps, than the world has ever brought out. The production of butter and honey was especially pointed out as worthy and laudable, in the Bible; and whatever is in the Bible will bear following. Many people find themselves greatly benefited by a diet of milk and honey; and in the text I have quoted, butter and milk amount to pretty much the same thing; that is, the industry that affords butter, of course affords milk. A great deal has been said here about the overproduction of honey. We are producing too much of it, hence the low prices. I want to say, there is no overproduction, if it were properly placed before the people, and they had an opportunity of using it. There are enough children in our land alone to take every pound of honey we can produce, and not have half enough to go around, even then. [Applause.] Instances have been mentioned during this convention, of cases where people had no sort of knowledge that good honey could be offered at retail for 8 or 10 cents per pound in its liquid state, and from 12 to 15 cents in comb. [Louder applause, etc.] We have produced immense quantities of honey. At one time the shipment of a ton of honey to New York created quite a sensation; but now, carload after carload may be unloaded at our commission-stores, and no note or comment is made of it. We are consuming immense quantities, but the world is by *no means* supplied yet. What is the trouble? One of the troubles, to my mind, lies right here, and it certainly is a very great trouble. The industries of our land are not all worthy and laudable. The Bible indorses and approves of the milk and honey industries; but does it anywhere say that beer and whisky shall ye drink, that ye may know to choose the evil from the good? [Loud applause.] Do you wish to know what the beer and whisky business has to do with the low price of honey? Just this, my friends: The money that should pay for milk and honey for the children, now pays for beer and whisky every Saturday night, and the children go without these things that would be so conducive to their health and well-being. [More applause.] You have all heard of the immense sums of money that go into the dram-shops. Now, a great part of these immense sums are made up of the money that is needed for the growing children; and I hardly need allude to the fact that a mere fraction of the money that goes for intoxicating liquors would take all the honey that we can produce, at good prices, and the honey would benefit, while strong drink is a curse."

I wish it were possible for me to give a good many more similar talks furnished us by friend Root; but I am afraid that a good deal that I have quoted above may be so far from his words that some of the friends may think I have not done him justice; but I have given the idea, and it is a grand one for the encouragement of the bee-keepers of the world.

Some very pleasant words were said in regard to reviews of the past. Friend Root

spoke of the progress we had been making in the matter of charity for each other. Said he, "Why, I remember the time when this convention spent nearly one whole day in censuring and finding fault with the editor of GLEANINGS and the editor of the *A. B. J.* The principal complaint made of our friend A. I. Root was his one-pound section. I am glad he is here to-day, however, and I am glad that the one-pound section is now the standard the world over. We complained then because of the smaller package he recommended. What shall we say now, when a dime package of comb honey seems to be the coming package?"

The subject of supply-dealers came in, of course, during the deliberations, and friend Root said he had urged the importance of bee-journals not connected with the supply-business, and he still felt that it would be very desirable, if it were possible, to have a bee-journal in no way connected or interested in the sale of supplies. He added, however, that, if experience seemed to indicate it best, all things considered, to have the editors deal in supplies, he was willing to give way and let the matter drop. He emphasized, however, a point which I wish to notice a little. It was this: That one who deals in supplies, and has no interest in any journal, does not stand a particle of chance of competing with the proprietor of said journal, on account of the editor's facilities for constant advertising. At that time I wanted to put in a word; but as so much was before the convention, and as it seemed a little like pleading for my side of the question, I let it drop. I will, however, give it here: Admitting that a bee-journal is a wonderful help to a dealer in bee-keepers' supplies, because of the reasons given, there is, notwithstanding, a far better way of advertising than through any bee-journal; and this better way is open to all and every one in any business of any kind. Shall I tell you the secret? It is, my friends, simply to surprise every customer you get, by giving him the goods he has paid for, before he expects them; and surprise every one who writes you a letter, by getting some sort of an answer to him before he supposes an answer could possibly have had time to reach him.

Had there been an opportunity for me to say this before the convention, I suppose it would have brought down the house with applause, for they applauded me for many things with far less truth in them than the above. Now, the above few words are of so very much importance to the thousands who are just embarking in business, that I want to digress right here in my report of the Albany Convention, long enough to explain a little how you may all avail yourselves of this wonderful means of advertising. If you are some distance from the postoffice, and go after the mail yourself, put some postal cards in your pocket. Open your mail at the office, and acknowledge the receipt of letters of importance right on the spot. It is a very great advantage to be located near a post-office and express office; and if you are going to build up much of a business of supplies, or sending goods by express or freight, you had better get a location that will admit

of promptness. When an order comes with money, start back a postal card, telling your patron what to expect; then bend your energies to the fulfillment of the order in such a way as to make friends with your customers. Now, then, get up early mornings, or be out a little after dark, if need be, to get the goods on an early train; and if you lose money by the time it takes to be prompt, on a single transaction, you are laying up money by building a reputation, and you are building on a solid rock.

After the convention was over, among the great numbers who wanted to shake hands with "Brother Root" was a young man of fine appearance and pleasing address. By the way, I have begun to think several times lately I was really falling in love with the boys of our land—with good boys—boys who do not swear nor drink, nor use tobacco—boys who love bees and outdoor pursuits—boys who love godliness and righteousness. Well, right before me was a model boy. He might have been 25 years old, but he was one of America's boys for all that. He was a schoolteacher; and it just now occurs to me that I love schoolteachers. May God help us in choosing teachers for our youth, who are upright in life and pure in heart. After talking with him a little I found out that his father was somewhat of a market-gardener, and that he himself was in love with intelligent agriculture. Need I tell you that we became fast friends very fast? When we got down to the Globe Hotel he applied for a room, and was told that the bee-men had filled the house completely—there was no room for another one. "Why, look here," said I to my friend, "if it meets your approval, room with me, and then we can talk bees and gardening."

He seemed to be very much pleased with the arrangement, and we had some big talks. I tell you. Next month I will give you the outcome of some of these talks; but I want to make only one point now. He, with many others, spoke of our wonderful promptness at the Home of the Honey-Bees, and, by way of contrast, he mentioned the following:

Early in the spring his father sent for section boxes, etc., for the coming harvest. He sent the exact amount of money, for he had previously received an estimate. The estimate came promptly; but after they had sent the money it was almost impossible to get a word from the supply-dealer. I do not know whether they even acknowledged the receipt of the money or not, but they did not send the goods, and did not tell when they would send them. The bees began gathering honey. As our friends could get no answer they asked to have the goods sent at once, or the money refunded; and in any case to let them know what to depend on, without a moment's delay. After nearly or quite two weeks had passed, our young friend, in desperation, went across the country with horse and wagon, and succeeded in getting some sections that were not at all what he wanted, although they cost much more than those that were ordered and paid for. After they got home with their odd-sized sections, and got part of them in the

hives, the goods that had been waiting for weeks and months put in appearance. But even then no word of apology, no letter of explanation, came. After the rush was over, came a very handsome letter of apology. I do not remember whether there was a proposal to pay the damages or not, but there ought to have been. My young friend stated, that a simple postal card, telling them just what they could depend upon, would have been worth more than ten dollars in cash. Now, then, do you see clearly the secret I have been telling you of—a secret that is worth for advertising purposes *more than all the bee-journals put together?*

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

HOW THE BEES HAVE WINTERED UP TO DATE.

IN my last, you remember I felt somewhat apprehensive as to whether the large number of nuclei with their valuable queens would survive the continued zero weather we were then having. Since this time we have had a day or two of beautiful spring weather, during which our bees all had a good fly. I am glad to inform our readers, that, at this writing, not one of our colonies, either large or small, has died. I opened, or peered into about 25 of the doubtful ones—the weakest and the strongest. The former I feared might perish from the cold, on account of the small cluster; the latter, because they might have consumed their stores. All were in excellent condition, and well supplied with stores. As the bees were flying from the entrances of all the rest of the hives (about 175), from which bees ought to be flying if alive, we decided not to open them up and disturb their winter nest. The colonies all had a great abundance of stores the previous fall, and we took it for granted they would hardly be needy by this time. In a month or so, when a warm day permits, we will examine all thoroughly, and all such as may be running short we will supply with combs of sealed stores. These latter we have stowed away for this purpose, in our honey-house.

While it is encouraging thus far, the bees have yet to encounter the changeable weather of spring, and I may yet realize what I at first feared.

VENTILATION.

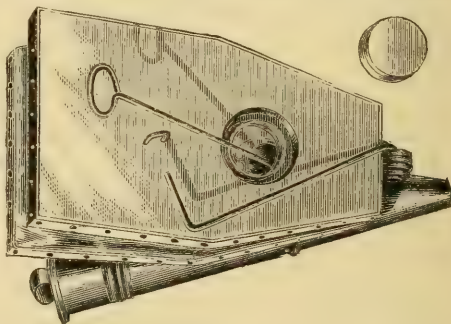
For two seasons back, my attention has been attracted particularly to the fact that all colonies packed in chaff hives cluster close to the front side of the hive (providing they have stores in that quarter) just over the entrance. In pulling back the chaff, and lifting the burlap in the colonies that I examined recently, I found that the bees were invariably clustered over the entrance. Why do they do this? I believe it is wholly on account of better ventilation which they get in that quarter of the hive. Hence I think the wisdom of giving bees the full width of the entrance.

WHEAT OR OAT CHAFF.

One of our colonies was, by mistake, packed with oat chaff instead of wheat chaff, as the rest were packed. The chaff in this hive was wet and moldy, and even partly rotted. The wheat chaff, on the contrary, was nice and dry. I threw out the wet chaff and put some dry in its place.

CLEANING THE CLARK SMOKER FROM THE VALVE.

In order to obtain the best results, the Clark should be cleaned daily. Heretofore we have been obliged to clean from the nozzle, passing the wire cleaner through the blast-tube: but as the latter is not easily accessible through the nozzle of the smoker, C. C. Miller and others have suggested that the valve be made removable so as to permit the cleaning-wire to enter through the bellows into the blast-tube. Mr. J. T. Calvert, one of our co-workers, as you may know, and a brother-in-law of the writer, has struck upon the plan illustrated below.



THE CLARK SMOKER, WITH THE VALVE SO CONSTRUCTED AS TO FACILITATE CLEANING.

The engraving shows the smoker in the act of raking out the sooty accumulation, the wire passing through the valve into the blast-tube. You observe that the valve-hole, instead of being located where the small staple is now, is placed directly opposite the blast-tube. The arrangement for permitting the closing and opening of the valve is simply a screw cap of a suitable size. The leather is punched to receive the rim of the cap, and is glued fast. When the cap is screwed on we have a valve that works as before. If it is desired to clean the blast-tube, the cap is unscrewed. As the new arrangement of the valve adds but a trifle to the original cost of the smoker, we will furnish the smokers at the same price as before. There is only one defect in this valve. After the accumulation of soot has collected in the cap, it is sometimes difficult to unscrew it. But one with a pair of stout fingers ought to be able to loosen it. The bellows must be tightly closed, otherwise the unscrewing of the cap will loosen the valve.

This improvement greatly facilitates cleaning, as well as making a better job of it. The soot, instead of being pushed in the bellows, as in the old way, is, by the plan above, shoved out through the valve-hole.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,

EDITOR AND PUBLISHER.

MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 1, 1887.

If, when ye do well, and suffer for it, ye take it patiently, this is acceptable with God. 1. PET. 2: 20.

The department of Circulars Received is crowded out this issue by advertisements.

The total number of new names received during the past month, exclusive of renewals, was 528; ordered out, 190. Total number up to date, 6424.

PROF. COOK'S NEW BOOK ON THE MAPLE-SUGAR INDUSTRY.

The title of the above book is, "Maple Sugar and the Sugar-bush." It will be a book of about 50 pages, profusely illustrated, and we hope to have it ready to mail by the 15th of this month. Price 40 cts. by mail, postpaid. If ordered with other goods, by express or freight, 35 cts.

THE BEE-KEEPERS' ADVANCE.

The above is the name of a new journal, or rather, perhaps, the name of the *Maine Bee-Journal*, commencing with the new year. It is now in the hands of our good friend J. B. Mason; and as he has been a good straight honest man heretofore, we suppose he will be a better one since he has become an editor. The January number is at hand, and full of good things; but if I were in friend Mason's place I don't believe I would have my price list of supplies bound together with the journal. I know there are other journals that do the same thing; but as we have, as a class, been accused of running our bee-journals solely to advertise our supply business, will it not be better to shun even the appearance of evil?

EXTENDING THE TERRITORY TO THOSE WHO ARE SOLICITING SUBSCRIPTIONS FOR GLEANINGS.

SEVERAL have asked us if they could not take names at adjoining postoffices as well as at their own, and we have decided that you may get subscriptions anywhere you choose, provided you see the parties personally, and do not, in any circular or elsewhere, make any printed announcements that you will receive subscriptions for less than \$1.00 each—our established price. The principal idea is, friends, to have GLEANINGS presented to the class of individuals who would not know any thing about it unless their attention was called to the matter by some one in their neighborhood. Our subscription-list is evidently going higher this year than it has ever done before, and we think it is principally owing to this matter of personal work for it. If you do not get the subscription, be sure to send in the name, in order that we may send the party a price list.

THE AMERICAN AGRICULTURIST.

ONE reason why we value this standard agricultural periodical is because of its numerous engravings of household and farm conveniences that appear in

every issue. As an illustration: A few days ago we were talking about an arrangement of pulleys whereby our teamster could lift the box from the wagon himself, and put it on again, having the box overhead in the tool-house, entirely out of the way. In glancing over the *Agriculturist* for February, I saw a picture of an arrangement not only very much better than the pulleys, but cheaper, and I presume that this one picture saved me much more than the price of the journal for a year. It saved a good deal of thought and study, and gave me a better machine than it is at all likely I should have got hold of without its help. The regular price of the journal is \$1.50 per year, but we can furnish it to our subscribers for \$1.25.

MR. THOMAS HORN.

AFTER considerable correspondence, Mr. Horn has finally consented to have me collect all the claims against him; and to end all controversy and long letters, he proposes to give his note for all indebtedness. These notes are to be payable in two years, but he is going to try to pay them up this season. Ten per cent is to be added for the use of the money. Now, then, write me just how much Mr. Horn is owing you; and when the amounts are ascertained to be correct, I will forward you his note. Please do not write long letters about it, if it can possibly be avoided. When we get every thing settled, Mr. Horn is to advertise again, and make the attempt to get back the reputation he has temporarily lost. We presume most of his customers will consent to receive bees or queens this season, instead of asking for the cash back again; but the note is to be held until the account is settled satisfactorily. Let us make it as easy as we can for him to get on his feet again, for you know there is joy even in heaven over every sinner that repenteth.

WHO SHALL BE GREATEST?

In the issue of the *British Bee Journal* for Jan. 6, we notice some reflections on the American people for having copied the inventions of our British friends, without giving credit, and it is stated that the one-piece section was made in England at least one season before it was made in America. No doubt this may be so, but I do not believe it will benefit any of us to spend very much time in looking it up. Let us by all means be careful to give credit whenever we get an idea from any one. With the multitudes on both sides of the water who are now contributing to our inventions and bee-literature, it may be, however, sometimes quite inconvenient to acknowledge every suggestion by which we have profited. Let us remember the Savior's words to his followers when he found them disputing among themselves as to who should be greatest. Quite frequently I find my inventions used and described, without any credit whatever to the source. Sometimes articles are copied, or portions of them, without credit. This species of plagiarism is not confined to this side of the Atlantic, however; for on page 285 of the *Bulletin d'Apiculture de la Suisse Romande*, one of our ablest French exchanges, edited by Ed. Bertrand, at Nyon, Switzerland, we read:

We are pained at times by the custom that some journals have of reproducing articles from our *Review*, without giving credit, or simply giving the name of the writer of the article, without paying any attention to the law of literary propriety, which demands that the name of the proprietor—that is to say, the name of the journal, be indicated. This is a convenient way of obtaining the work of our co-

workers. Another method consists in taking the text and changing the lines a little.

As for *myself*, I do not see that it matters very much, after all. If the public are benefited, does it make any great difference "who is the greatest"?

ARTIFICIAL COMB HONEY — SOMETHING MORE ABOUT IT.

A SHORT item appeared in the Pittsburgh *West-End Bulletin*, to the effect that there was an establishment in Pittsburgh making comb honey, etc. Our good friend W. H. Ferguson, of Bloomsdale, O., while in the above city, took the pains to follow it up. The editor of the paper declared there was no mistake about it, and gave the street and number. When our friend got there they said it was a fact, but that it was off somewhere else, up three flights of stairs, and so on. What do you think they found? Why, a man who makes cement and sealing-wax; and it happened that this worthy tradesman also put up very neat little cakes of wax for the sewing-table—just that, and nothing more. As he is said to be both honest and industrious, we give his address to the friends who may want little cakes of wax—postoffice box 155, Pittsburgh, Pa. Now, then, who comes next?

SPECIAL NOTICES.

MAPLE SYRUP.

In view of the crop soon to come, we offer the remainder of the lot mentioned on page 1002, Dec. 15th issue, at 75c per gallon; or 85c per gallon with package included to ship it in.

DISCOUNTS ON GOODS FOR THE MONTH OF FEBRUARY.

As before announced, we shall make an extra discount of 3 per cent on all goods of whatever nature, mentioned in our price list, for orders received during this month. The object is, to prevent the rush and crowd that comes a little later on.

THAT LOT OF GLASSED COMB HONEY.

In order to close this out before the new season opens, we have decided to offer it at an even 10c per lb., in lots of 10 cases; less than 10 cases, 10½c per lb. For weights of cases and further description, see page 329, April 15, 1886. If you have not the above number we will mail one on application.

FRENCH BEE-JOURNALS.

We have on hand a large lot of nearly all the standard French bee-journals published. We will mail any number, as long as they last, to all who can read them, for 3 cts. per copy. So far as possible they will come in regular order. At this rate we can not promise to select any particular number.

FRIEND MARTIN'S CHROMO.

As a general thing, it will not do for us to make editorial mention of the things offered for sale in our advertising columns. Friend Martin has, however, gotten up a chromo of such exceeding beauty that we do not feel as if it would be right to pass it by. The figures of the bees and queen stand out like life. The Chapman honey-plant is wonderfully true to nature, even to the colors. The same is true with the alsike clover and other honey-plants. Even Heddon's hive is a thing of beauty, as the chromo shows it. The idea is, to have your price list printed on the back of these cards. For convenience in this latter respect, we will furnish them here at his prices. The cost of the printing on the back side will depend on the amount of matter. The size is about that of a common postal card. One feels, in looking at this, as he does in looking at many of the seed-catalogues nowadays—the pictures are a good deal nicer, many times, than the thing itself.

WHAT KIND OF SEED SHALL WE PLANT?

SOME EXCEEDINGLY KIND WORDS FROM FRIEND GREEN, OF THE EXPERIMENT STATION, COLUMBUS, O.

FRIEND ROOT:—I am much pleased with your catalogue of seeds. Many might think, that, because your list is so short, you do not have the best to be had; but my reason for being pleased is the fact that you *have the best* and about *all the best*, varieties known to the trade, and have put the matter in such shape that even a novice can select. You have condensed a voluminous catalogue to two pages, and have left out hardly a single valuable thing; or, to use a very common figure of speech, you have given us the "cream" of the catalogues. The list is not yet quite so short as I would have made it, and I would put in a few varieties not found there; but it is near enough to my ideal to meet my hearty approval.

I know that one's success in gardening depends largely upon a good selection of varieties; and I know, also, that the majority of people do not know what the best varieties are. The ordinary seed-catalogues are so voluminous as to be confusing to all except the experienced gardener, and he is often misled by a flaming list of novelties. Having tried almost every thing, and found so few varieties that are really good, I can readily see how serious losses and vexations might come because of these bad habits that our seedsmen have fallen into. I have really taken the matter quite to heart, and have ardently desired to see a reform inaugurated. I have not blamed seedsmen, at least none in particular, for the evil has grown so gradually, and apparently in such an innocent manner, that the blame can be attached to no one alone. Furthermore, I had come to think, with many seedsmen, that a short condensed list would carry no weight, and bring but few customers. I hope, Mr. Root, that you will not hesitate to tell us the results as nearly as you may be able. If others know as well as I know that you have not only selected the best varieties, but have bought your seeds of the most reliable growers, they would not hesitate to order of you. You might have bought seeds that would not have cost you half the money, nor that much, indeed, in the case of many articles; but you have selected the best, and I earnestly hope that you will be rewarded; but I really fear that your reward will be almost wholly that which comes from having a good conscience, which every man ought to have, but he is entitled to something more also, if he is diligent.

One thing further I should be glad to see done; but if it is done at all it must be done in a convention of seedsmen. That is, to reform the nomenclature of vegetables. At present every one has his own way of writing names. One writes Early Wakefield, another puts in the Jersey, and another prefixes Very. An old English pea is called, by some, Early Philadelphia, while others, like Landreth and Henderson, prefix their own names. Thus it gets out under a dozen or more aliases. So on through the list, almost every thing having several names. If this does any one any good, I am unable to see how; and I am not ignorant of the arguments in favor of it. That it does harm, there can be no doubt; for it is a stumblingblock in the way of thousands who buy seeds. Suppose that some one concludes to give you an order, but fails to find in your list what he wants. It is altogether probable that it is there, but under another name, or, what is still worse, the same name is often used for entirely different things; and even the most careful may thus get deceived in buying. Fruit-growers have had the same trouble, but they have brought about a reform, and seedsmen ought to do the same. I can not believe that things are so disjointed in this world that it pays to *perpetuate* a wrong. Every seedsman who aids in keeping up this Babel of names is doing his customers an injustice, and I do not believe that such a course is consistent, nor in accord with business principles. It surely is not honest for a seedsman to prefix his name to a thing, or rename it in any way, and then send it out at a high price as something new, when every seedsman has it; and I do not believe that such a course pays in the long run. It is, however, done frequently, and a large share of the surplus names come in that way. I do not object to an improved sort being

called "Improved," or in some way designated, and let the improver have the credit, but we want short names, and honest names, and I hope the time may come when we shall have them.

Columbus, Ohio, Jan. 4. W. J. GREEN.

After reading the above I wrote immediately to friend Green, saying that I would gladly pay him for the time and trouble required to cross out and add in such garden vegetables as he thought advisable. I also desired him to direct me in regard to asparagus, potatoes, and a few other things omitted in our list, as given on pages four and five, issue for Jan. 1. The following comprises all the additions he has thought fit to make. The only things he has crossed out from the list as I gave it is the long blood beet, the Stone-mason cabbage, and the Trophy tomato. He does not mean to say by this that the above are not good, but that we have others so much better he thinks it advisable to drop them out. The additions are made as follows:

ASPARAGUS.

Conover's Colossal. Oz. 5c; lb. 50c.

These are said to be improvements upon this variety, but they have not been fully tested. No one will lose any thing by planting this old standard.

BEANS.

White Marrowfat. Pt. 10c; pk. \$1.00.

One of the best to use shelled, when green or ripe.

BEETS.

Lane's Improved. Oz. 5c; lb. 40c.

The best variety for stock-feeding. It showed a larger per cent of sugar at the Experiment Station than any other analyzed.

Long Red Mangel. Oz. 5c; lb. 30c.

Yields well, but not so sweet as the above.

CABBAGE.

Louisville Drumhead. Oz. 15c; lb. \$2.00

One of the most uniform and surest-heading sorts tried at the Ohio Experiment Station. It is a little later than Flat Dutch, hence may be planted later; just the kind to plant after early crops.

CARROTS.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.

Yields well, and is easy to dig. The best sort known, by all odds.

CORN (FOR TABLE USE).

Livingston's Evergreen. ½ pt. 5c; pk. \$1.00.

Earlier than the Mammoth. Excellent as a market variety, also for drying and for home use.

ONION.

Yellow Danvers. Oz. 20c; lb. \$2.50.

A standard yellow variety. The best of all to grow from seed. It makes a wonderful difference, however, how the seed is grown. Some strains will give nearly double the crop that others will.

PEAS.

Landreth's Extra Early. ½ pt. 5c; pk. \$1.50.

We consider this equal to any for the first peas of the season. The same as the First of All, First and Best, and other extra earlys. It yields its crop in a very short time. Not equal in quality to the following:

Marrowfat. ½ pt. 5c; pk. \$1.00; bu. \$3.50.

One of the most desirable and well-known late sorts.

POTATOES.

Early Ohio. Per peck, 50c, or \$1.25 per bushel.

The Experiment Station, Columbus, O., says there is nothing earlier.

Our whole crop of Early Ohio last season was sold at \$2.40 a bushel. Of course we could not offer the seed at the above prices were in not that we procured our seed of a neighbor who raises potatoes largely.

Early Pearl. Per peck, 75c, or \$2.50 per bushel.

The Experiment Station finds this about as early as the Early Ohio, and perhaps yields a little better.

Lee's Favorite. Per peck, 50c, \$1.25 per bushel.

This is a few days later than the foregoing, but yields a little better still.

Empire State. Per peck, 40c, \$1.25 per bushel.

This, the Experiment Station considers as good a late or medium late potato as any before the public. They decide that the above four varieties are the cream of the list.

KIND WORDS FROM OUR CUSTOMERS.

Box received; every thing is all right, perfectly satisfactory. A part of the articles are already in use. Wm. C. PALMER.

Old Chatbam, N. Y.

The section honey I ordered of you some time ago, received in good order; no leakage and no breakage. Wm. BITZER.

Fulton Station, W. Va., Nov. 29, 1886.

GLEANINGS has become a household fixture. The A B C is our best counselor. The "Home of the Honey-Bees" is that Mecca to which one longs to make a pilgrimage. L. F. STODDARD, M. D. Ramsay, Ill.

Accept my thanks for the favors you have shown me during this year. Your goods were satisfactory in every respect, and all arrived without the slightest injury. W. T. HORTON.

Confluence, Pa., Nov. 24, 1886.

THAT WATERBURY RUNS UP TO A MINUTE.

I have had dealings with you, and found you always to deal on the square. The Waterbury you sent me runs just as you said it would, up to a minute—the best timepiece I ever had.

Pleasant Mound, Ill.

W. G. HAYEN.

The honey arrived all right. I have sold nearly \$8.00 worth of it, clover honey, at 15 and 16½ cts; basswood, at 12½ and 14. Plenty of California honey in town at 10, section boxes at 13, for sale. The "Little Detective" is a gem. D. HOWARD.

Dover, Del., Dec. 10, 1886.

"BREAD CAST UPON THE WATERS."

I want GLEANINGS and the *British Bee Journal* another year, sure. GLEANINGS I should want, even if I took no interest in bees. I don't wish or intend to flatter, but your labors in GLEANINGS for the benefit of the world generally are appreciated by myself, and have been the means of leading me to consider the hereafter as nothing else has done. You may not feel that you are getting an immediate reward for your work, but it is "bread cast upon the waters," and it will surely return. You will find in your crown of glory many stars that in this world you will have no knowledge of.

J. E. POND, JR.

Foxboro, Norfolk Co., Mass., Dec. 10, 1886.

HOW A WOMAN CAN MAKE USE OF OUR WHEEL-BARROW.

Inclosed find \$2.00 for goods mentioned below. I am ashamed for not letting you know how nicely those goods were packed. They carried well, and we were all so well pleased with them we could not find fault if we tried to. We were pleased with every thing, from the 10-cent wrench to the wheelbarrow. That little wheelbarrow is a blessing to women. It saves many steps. We use it in the house and out of the house. I never knew before that a wheelbarrow could be made to be so useful. Of course, some would ask, "What could you do with it in the house?" Try it in taking up carpets and what not; in house-cleaning, etc. Try it in bringing vegetables from the garden. I think mine a very nice piece of furniture when brought into the kitchen, loaded with sweet corn, tomatoes, etc. With a little care there need be no litter. I never allow the chickens to roost on my wheelbarrow. It is too good a friend. If it should get broken I should have to have another right away. MRS. ANN SCAIFE.

Barboursville, Lyecoming Co., Pa., Nov. 30, 1886.

THE A B C OF BEE CULTURE.

I think I can claim, or rather begin to claim brother on bee-keeping, after the success we have had this summer. Wife and I are partners in bees as well as in every thing on the farm. Only one thing we do not agree on—I have had two A B C's and sold them both in a short time after I got them. Wife rebels, and says she is going to have one herself, as we can not keep bees without it. I had 9, spring count, all pretty good and strong. We took off 1250 lbs. of comb honey in 1-lb. sections, and 200 lbs. of strained. We increased to 23; sold 5, lost 1, and now have 17, packed away in chaff and forest-leaves, on summer stands. I think we have

one swarm that is hard to beat for brown bees. I don't like the name "black." We took from it 175 lbs. in pound sections. How is that for an A B, not yet to C, scholar? Three years ago we hardly knew a drone from a worker. We have not lost one yet in wintering. We thank the A B C book for it, with GLEANINGS to help. We could not do without your journal. I miss Our Homes every other week. I would rather have it come twice a week than twice a month.

JOHN H. KIRK.

Royalton, Mich., Dec. 24, 1886.

EXCHANGE DEPARTMENT.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city. 20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

THOROUGHbred fowls. Brown Leghorns, S. S. Hamburgs, W. C. B. Polish, P. Rocks and Wyandottes, Bonney's, Forbes', Hawkins', Wilcox & Fultz' strains. We will sell for cash, or exchange for fdn. and beeswax. Price list free. 18-19tfdb A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange, nursery stock of all kinds (evergreens a specialty), for Italian bees, tested queens; nuclei, fdn., apiary supplies, bee-plant seed. Give prices of your goods. My price list free. R. A. LEWIS, Cherokee, Iowa.

WANTED.—To exchange Gregg raspberry-plants, comb fdn., 1-lb. 1-piece sections, L. frames. For particulars, address THOMPSON BROWN, 1d Cloverdale, Ind.

WANTED.—To exchange spider-plant seeds for Plymouth Rock eggs, Conger or Hawkins strains, or offers. W. A. SANDERS, 3d Oak Bower, Hart Co., Ga.

WANTED.—To exchange extracted honey for one-piece sections. CHAS. T. GEROULD, 3d East Smithfield, Bradford Co., Pa.

WANTED.—To exchange eggs from four yards, pure-bred prize-winning Plymouth Rocks, for pure Italian queens. Eggs, \$2.00 for 13, or \$3.00 for 30. B. D. SIDWELL, 3-8db Flushing, Belmont Co., Ohio.

WANTED.—To exchange a good colony of bees in Mitchell or Simplicity frames for Rose Comb, Brown Leghorn Pullets, or Wyandotte Pullets. Nothing but thorough breed wanted. 3d DAVID LUCAS, Jewett, Harrison Co., Ohio.

WANTED.—To exchange my new catalogue of bees, queens, new section-case, for your address on a postal card. Address F. A. EATON, 3-4d Bluffton, Allen Co., Ohio.

WANTED to exchange or sell, a Given fdn. press, 3 tanks, and 1/2 doz. dipping-boards. 1tfdb J. SWALLOW, 2816 Mo. Ave., St. Louis, Mo.

WANTED.—To exchange for a self-inking printing-press (not less than 10x12-inch chase), or offers, one German-silver B-flat cornet, used but little, one novelty printing-press, 6 1/2 x 10 inch, and a lot of Simplicity bee-hives. Address 2-3d CYRUS MCQUEEN, Baltic, Ohio.

WANTED.—To exchange chaff hives or surplus crates for bees next spring. Illustrated price list on application. GEO. E. HILTON, 2-3-4-5-6d Fremont, Mich.

WANTED.—To exchange pure Italian bees for supplies or chaff hives in flat. Make offers. For particulars, address S. F. REED, 2-tfd N. Dorchester, N. H.

WANTED.—To exchange Cuthbert raspberry roots for a double-barrel 12-gauge breech-loading shot-gun, or a female ferret, or beeswax. 3-6db M. ISBELL, Norwich, N. Y.

WANTED.—To exchange Italian or Syrian queen-bees, or 3-frame nuclei of same, for a pair of Embden or Toulouse Geese, a pair of Aylesbury and Rouen ducks, Bronze and White Holland turkeys, or other fancy poultry. Address 3-4d W. P. HENDERSON, Murfreesboro, Tenn.

WANTED.—To exchange some comb and extracted honey for hives, 1-lb. sections, 4x4x1 1/4 or 2, and a few trio of Wyandottes and a few cockerels for supplies or cash. 3d L. WERNER, Edwardsville, Ill.

WANTED.—To exchange a new large pictorial family Bible, cost \$8.50, for extracted honey. 3d W. H. LAWS, Lavaca, Ark.

WANTED.—To exchange a "Taylor" Horse Power, Saws, etc. (cut furnished on application) for hive-making, and a 10-inch Root fdn. mill, tank, etc., good as new, for nice extracted honey, farm wagon, cash or offers. J. G. FITZGERALD, Brookston, Tex.

WANTED.—A sandpaper section machine (Root's make) in exchange for bees, sections, shipping-crates, or a sewing-machine. 3d F. GRANGER, Harford Mills, Cortland Co., N. Y.

AT KANSAS CITY, MO.

••PURE ITALIAN BEES FOR SALE••

Untested queens, in May.....	\$1 50
" " June.....	1 25
" " after.....	1 00
Tested queens, double the above prices.	
Full colonies, before July 1.....	\$12 00
" " after.....	10 00

Bees per half-pound, same prices as untested queens. My untested queens are

Warranted to be Purely Mated.

My bees are in fine condition; no "foul brood" in my yard or neighborhood. 3tfdb. E. M. HAYHURST, P. O. Box 60.

SIMPLICITY AND LANGSTROTH HIVES,

ALL DOVETAILED SECTIONS,
BROOD AND WIDE FRAMES, SHIPPING-CRATES,
Wire Nails, etc. Send for circular.

GEO. WHEELER,

3tfdb. Norwich, Chenango Co., N. Y.

ALL DOVETAILED SECTIONS,

One and two pounds. Langstroth Hives, etc.; 50 colonies Italian Bees, Nuclei, Queens, Brood and Section fdn. Ash kegs for extracted honey, frames of brood and bees. M. ISBELL, 3-6db. Norwich, N. Y.

DON'T FAIL

To send for price list of Bee-Keepers' Supplies, etc., manufactured by the use of

NATURAL GAS,

3-5d. To J. J. BRADNER, Findlay, Ohio.

7 8 9 10 11 12	BEES! BEES! Colonies, Nuclei, and Queens, For sale. Send for price list to S. D. McLEAN, 3-5-7d. COLUMBIA, TENN.	1 2 3 4 5 6
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FLAT - BOTTOM COMB FOUNDATION.

High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS.
Sole Manufacturers,
SPROUT BROOK, MONT. CO., N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

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C. M. GOODSPEED,

THORN HILL, ONONDAGA CO., N. Y.,

Furnishes any newspaper to single subscribers, away below the usual club rates. Our list comprises all the leading papers, and is the lowest-priced list in the field. Alsike, bees, queens, poultry, and small fruit. Write for 20-page catalogue. Mention this paper. 2-48d

FOR SALE.—A complete apiary of 140 colonies of fine premium bees in a never-failing locality. A bargain, if called for soon. My bees and queens were awarded first premium at the late St. Louis Fair, St. Louis, Mo. Address at once, L. WERNER, Edwardsville, Ill. 4tfdb

For Sale, or exchange for Western land, 90 colonies of bees and apiarian fixtures, sufficient to increase colonies to 100 double hives—Simplicity hives. An excellent opportunity for a live apiarian. Plenty of white clover and basswood, besides abundance of fruit-bloom. Inventory sent on application. Must be sold soon. 4-5-6d Address S. W. LAKIN, Eureka, Ill.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdb

EXCHANGE DEPARTMENT.

WANTED.—To exchange some comb and extracted honey for hives, 1-lb. sections, 4¼x4¼x1¼ or 2, and a few trio of Wyandottes and a few cockerels for supplies or cash. 3d L. WERNER, Edwardsville, Ill.

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EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free. 4tfdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange bees for cornet. 4d. L. J. TRIPP, Kalamazoo, Mich.

WANTED.—To exchange nursery stock of all kinds for bees in spring. Terms on application, stating what you want. D. G. EDMISTON, 4tfdb. Adrian, Mich.

WANTED.—To exchange for bees and apiarian supplies, one four-horse-power engine, with five-horse-power boiler, nearly new and in tiptop order. Write soon. C. WOLFEALE, 4d. Wolfcote, Ohio.

WANTED.—To exchange a good Excelsior extractor, uncapping-pan, honey-knife, a lot of Simplicity hives, brood-frames, etc., for comb honey at 15 cts. per lb., delivered here. Address 2d. A. M. MORRILL, Box 473, Ft. Scott, Kansas.

WANTED.—To exchange Italian bees for American Merino sheep, buff and partridge cochins, Wyandottes, and Light Brahma chickens. Address 4-5d. P. F. RHODES, New Castle, Ind.

WANTED.—To exchange correspondence with California apiarists who want to employ one or two experienced young men next season. Address 3d. F. F. ROE, Ennis, Tex.

WANTED.—To exchange good harrow, lawn-mower, lawn-roller, each article for one hive of bees. ARTHUR TODD, 4-5d. 1910 Germantown Ave., Philadelphia, Pa.

WANTED.—To exchange bee-hives, sections, or frames, for full colonies or three-frame nuclei of bees. 4-5-6-d W. H. COOK, Clintonville, Wis.

WANTED.—To exchange foundation for three or four sittings of pure (none but the best) eggs of Wyandottes. W. K. JAMES, Loudon, Tenn. 4-5d

WANTED.—To exchange basswood-trees, hard maple, and raspberry-plants, for pure Italian queens. H. WIRTH, Borodino, Onondaga Co., N. Y. 4-5-6d

WANTED.—To exchange first-class brood-frames at 90c per 100, for honey. C. W. DAYTON, 4-5d. Bradford, Iowa.

WANTED.—To exchange P. Rocks, or eggs for hatching, or eggs of B. Leghorns, or Pekin Ducks, for Italian queens. 4d SPRING AND MEADOW POULTRY-YARDS, Mulberry, Pa.

WANTED.—To exchange Full-bred German Canaries, also rice pop-corn, for sections, beeswax, or supplies, also our homestead of 10 acres, for larger farm in Northern Ohio. F. H. CHAPIN, 4-5d. Hinsdale, N. Y.

WANTED.—To exchange bees in Simplicity hives for gold watch and Thomas smoothing-harrow. 4d Address L. D. GALE, Stedman, Chautauqua Co., N. Y.

WANTED.—To exchange Gregg raspberry-plants for comb fdn., 1-piece sections, or L frames. For particulars address THOMPSON BROWN, 4-5d. Cloverdale, Ind.

WANTED.—To exchange Italian or Syrian queen-bees, or 3-frame nuclei of same, for a pair of Embden or Toulouse Geese, a pair of Aylesbury and Rouen ducks, Bronze and White Holland turkeys, or other fancy poultry. Address 3-4d W. P. HENDERSON, Murfreesboro, Tenn.

WANTED.—To exchange a new large pictorial family Bible, cost \$8.50, for extracted honey. 3d W. H. LAWS, Lavaca, Ark.

WANTED.—To exchange Cuthbert raspberry roots for a double-barrel 12-gauge breech-loading shot-gun, or a female ferret, or beeswax. 3-6db M. ISBELL, Norwich, N. Y.

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One and two pounds. Langstroth Hives, etc.; 50 colonies Italian Bees, Nuclei, Queens, Brood and Section fdn. Ash kegs for extracted honey, frames of brood and bees. **M. ISBELL,**
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Stanley Automatic Honey-Extractor

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— 1887 —

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Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22tfdb

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ITALIAN BEES AND QUEENS.

All untested queens warranted purely mated. Also three varieties of

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BEE-SUPPLIES.

Hives, one-piece sections, comb fdn., smokers, honey-extractors, Italian queens, bees by the pound. Highest cash price for good beeswax, also honey. Send for our new circular for 1887, now out.

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In superior movable-frame hives. Frames $12\frac{1}{4} \times 12\frac{1}{4}$; eight frames each, at from five to six dollars per colony; or same in light strong shipping-boxes, 75 cts. less. Liberal discount on large lots.

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1-12db



HONEY COLUMN.

CITY MARKETS.

BOSTON.—*Honey.*—We notice a little improvement in sales, and one-pound fancy white honey is wanted; the supply is not equal to demand; price for same, from 14@15c. No change in other kinds.

BLAKE & RIPLEY,

Feb. 11, 1887. 57 Chatham St., Boston, Mass.

KANSAS CITY.—*Honey.*—No change in quotations since our last.

Feb. 11, 1887. CLEMONS, CLOON & CO.,

Cor. Fourth and Walnut Sts., Kansas City, Mo.

NEW YORK.—*Honey.*—There is no material change in the honey-market. There is a good demand for fine white comb honey, but the demand for poorer grades is limited, with plenty of stock. We make no change in our quotations. Extracted honey in fair demand, with the exception of buckwheat.

Beeswax, a little firmer, with good demand.

Feb. 11, 1887. THURBER, WHYLAND & CO.,
Reade and Hudson Sts., New York.

ST. LOUIS.—*Honey.*—The movement of honey is very light; few orders from country, and they are very small. Stock in the city is large, and seems to be still accumulating.

White-clover honey in 1-lb. sections, dull, 11@12; same in cans, dull, 5@6; Southern honey in bbls, as to quality, 3@4; California honey, in cans, amber, 4½; sage, 5. *Beeswax*, refined, 28@30; selected yellow, 28. Dark and mixed, 21.

W. H. WESTCOTT & CO.,

108 and 110 Market St.

COLUMBUS.—*Honey.*—Demand light. Best white clover, 14@15. Extracted, 10@12½. *Beeswax*, 22@25 in a jobbing way.

EARLE CLICKINGER,

Feb. 10, 1887. 117 S. 4th St., Columbus, Ohio.

CLEVELAND.—*Honey.*—There is no material change in the market. Sales continue very slow at 13c for best white in 1-lb. sections. Dark 1-lb., dull at 10; 2-lbs., white, 11@12. Extracted, 6.

Beeswax, 25c.

A. C. KENDEL,

Feb. 10, 1887. 115 Ontario St., Cleveland, O.

CINCINNATI.—*Honey.*—There is nothing new worthy of note in the market. Demand is slow for all kinds and shapes of honey. Prices remain the same as quoted last.

Beeswax.—There is a good demand for this, which brings 20@22c for good to choice yellow on arrival.

Feb. 10, 1887.

CHAS. F. MUTH & SON,

Cincinnati, Ohio.

DETROIT.—*Honey.*—Best white comb honey in one-pound sections, 12½c; other grades, 10@11.

Beeswax, 23c.

M. H. HUNT,

Feb. 11, 1887. Bell Branch, Mich.

CHICAGO.—*Honey.*—Sellers ask from 7@10 for dark and crooked to good 1½-lb. sections; good 1-lb. sections, white, but not scraped, 10@11. Fancy white in apparent good order, and scant pound sections, 12@13. Very little sold at the outside quotations. Extracted comb honey, lifeless. No sales to quote from this week. *Beeswax*, 25.

R. A. BURNETT,

Feb. 10, 1887. 161 So. Water St., Chicago, Ill.

FOR SALE.—2000 lbs. best clover honey in Root's "raised-cover pails." One set, 30½ lbs., \$2.50; 1 set, 122 lbs., \$9.25. Boxed, they ship same as bbls.

OLIVER FOSTER, Mt. Vernon, Iowa.

FOR SALE.—1 bbl. of 550 lbs. net, and 5 kegs of 115 lbs. net each, all of which is No. 1 white-clover honey, well ripened. Will take 6½c per lb. for bbl. and 7c for kegs. Sample sent for 2-cent stamp.

R. J. BARBER, 818 E. Washington St.,

Bloomington, Ill.

FOR SALE.—4 cases of 43 lbs. each, net, of the finest white-clover honey, in 1-lb. sections. Price 12½c per lb.; has been kept in a warm room, and is in good order.

HENRY WILSON,

Box 260, Clinton, Dewitt Co., Ill.

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(GERMAN ILLUSTRATED BEE-JOURNAL).

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As I am located where an abundance of basswood and pine grows, I feel safe to say I can furnish my goods as cheap as they can be produced.

A. I. Root Chaff Hive a Specialty.

All goods warranted. For reference, apply to the Bank of Clintonville, Wis. 4tfdb

Wanted. A good bee-keeper to take charge of my apiary of 120 colonies, on shares.

4d ROBERT BLACKLOCK, Kilgore, Carter Co., Ky.

10c pays for a valuable book for beginners, "First Principles in Bee Culture," or 75c for book and a Clark smoker. Circulars of a new pat'd hive FREE. G. K. HUBBARD, La Grange, Ind. 4tfdb

N. Y., N. J., MASS., & CONN.

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SEND FOR MY NEW PRICE LIST.

E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y. 4tfdb

ITALIAN QUEENS FOR SALE,

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Untested, in March and April, \$1.25; May to Nov., \$1.00; Nov. and after, \$1.25. Address 4-6-8d

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A Talk about some of the Implements, Plans, and Practices of a Bee-keeper of 25 years' Experience, who has for 8 years made the Production of Honey his Exclusive Business.

A book of 114 pages, well printed, and nicely bound in cloth.

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Dr. J. P. H. Brown, says: It bridges over a big vacancy in practical bee-keeping.

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Dr. C. C. MILLER,

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FARM FOR SALE.

A good farm of 125 acres in the great corn belt of Western Iowa—good crops the past dry season. An apiary on the farm has never failed to produce a good crop of honey. A pond of natural water, five acres of good timber, good bee-house, new stable, house 16 x 24, two story; ell, 14 x 24, one story. Good school facilities, healthy climate. Reasons given for wishing to sell.

F. E. ROSS,

4d

Onawa, Monona Co., Iowa.



Vol. XV.

FEB. 15, 1887.

No. 4

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RIPENING HONEY, ETC.

SOMETHING SPECIAL IN REGARD TO RIPENING THE CAPPED HONEY IN SECTION BOXES.

ON page 476 of GLEANINGS for 1886, Dr. Miller says: "It may be objected, that the bees, thus left to fill themselves, will take just so much honey out of the sections. That is just what I like to have them do, for there are always unsealed cells around the outer margin of a section, and the more honey taken from these the better." Dr. Miller, please tell us why you consider it an advantage to have this unsealed honey taken out. I used to think the same before I learned how to properly ripen honey, for in the cool damp room where I then kept it, the honey in these unsealed cells always kept thin and getting thinner, so that by the time I crated it a section could not be turned upon its side without this thin honey dropping out and daubing every thing upon which it fell. Accordingly I learned that sections must be kept right side up all the while if I would keep every thing tidy. Of course, I could do this; but how about the merchant who bought it, and the consumer? I well remember taking a nice sample of the most snowy-white comb honey I ever produced, to a merchant. I sold my honey, too, at that time, and the first thing he did was to turn the section down flat in his hand, as his eyes looked admiringly upon it; but said gaze was only momentary, for the honey from these unsealed cells which I had been so careful to keep in place was dripping down between his fingers, which caused a feeling other than of admiration to come over him. I then gave him a lesson in handling honey, and never afterward did I see him handle honey except in an upright position. But

however well I and a few others (who know how) might succeed in avoiding this daubing, yet I knew if such a state of affairs were allowed to exist that many would become disgusted with the "dauby stuff," even if I did not, so I set to work to see if I could not remedy the matter. After studying some time on the matter without solving it, I went to see Mr. Betsinger one day; and while there I went to see his honey, which was kept in a small building, only 7 feet high, having on it a rusty tin roof. As we went into the building I remarked about the great heat inside, when he said that this was as he desired it, for this heat ripened his honey so that it was thick, and never leaked and daubed things. Putting his talk into actions he picked up a section which had been in this room a couple of weeks, and turned it over, backward and forward, without a particle of drip, while one just off the hive, treated the same way, leaked badly. I then saw what was the remedy for my trouble; for heretofore I had kept my honey in a room on the north side of my dwelling-house, on the first floor, where of course it was cool and damp. Thanking friend B. for what I had learned I came home and planned my present honey-room which I have often described in the different bee-papers.

With this I was satisfied till some two or three years ago, when we had a damp cool time for about two weeks, during which the sun did not shine at all to warm up the dark paint on the outside, in consequence of which the honey gathered dampness to an extent not pleasing to me, especially as I was now about to crate it. This set me to thinking how to remedy the matter, should another such damp time occur in the future, the result of which was the placing of an oil-stove in my honey-room,

so that now I have complete control of the temperature, and can raise or lower it at pleasure by simply turning the wicks up or down. As, when the wicks are turned low down there is an offensive smell comes from the stove, I am about to fit a tin cover over the stove on which is to be fastened a length of two-inch conductor-pipe. On this I can use other conductor-pipe with various elbows so as to retain the heat and yet carry off all the fumes from the burning kerosene, the same as smoke is carried off by a stove-pipe. In this way the honey will be constantly growing better instead of deteriorating; besides, if I wish to draw it to market on a cold or cool day there will be no danger of breaking, for a body of honey will retain heat for a long time.

A MISTAKE CORRECTED.

On page 990 of same volume of GLEANINGS, Mr. Swinson says: "I think G. M. Doolittle made the statement, . . . that Syrians and Cyprians, as a rule, produce brighter-colored queen progeny than any other race." If Mr. S. will turn to page 729 of said volume I think he will find that he made a mistake in reading. I there say, that "the queens of these two races of bees are next in constancy of color to the German queens," by which I meant that their markings were more fixed and unchangeable than any other, save the German. This has nothing to do with brightness of color, as will be seen where I apply the same "constancy" to a greater extent, to black bees. I fully agree with Mr. S., that "the best domesticated Italian queens produce the yellowest queen progeny of any race we have," yet this does not conflict with what I say about queens of the other races being "most constant in color."

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., I have been thinking of your plan of ripening honey so it would not run out, and I regard it as a matter of the greatest importance. I am very glad you have taken it up for us in the very thorough way you have in the above.

ALSIKE CLOVER—WHEN AND HOW TO SOW, ETC.

ALSO SOMETHING ABOUT RAISING BASSWOODS FROM THE SEEDS.

DEAR SIR:—Whenever one of my manuscripts is not available, dump it into the waste-basket without ceremony. Can you not let us know through GLEANINGS, at an early date, when and how to sow alsike to the best advantage, and how much seed to sow to the acre when sown alone? Also how much, when sown with timothy? Please tell us when to gather basswood-seeds, when to plant, and how to cultivate.

Denison, Iowa, Feb. 1, 1887.

Z. T. HAWK.

Friend H., we are very much obliged indeed to you for the liberty you give us with your manuscript. There has been quite a little complaint of late, because we receive articles for publication and don't publish them, return them, nor give any explanation. If the friends will take a seat in the editorial chair a while, they will perhaps see why this is one of the hardest things to do, and do promptly. We are constantly debating what to use and what not to use. Now, to add to the perplexities, the contents of each mail is liable to upset the calculations we have made. For instance, an article has

been prepared for print. Something better and later comes in, and the first one is laid aside. At other times something occurs to render it desirable to hunt up and publish something we had decided not to use. So you see a great many articles are under a weight which we designate "Awaiting Further Orders." We do not put any manuscripts in the waste-basket. Sometimes an article lies on the table a month or two until we find we are just ready to give it a place. At other times, after having held it a month or two, to see just where the best interests of our readers are running, we decide not to use it at all.—In regard to alsike: As it is just about time now to sow it, we are glad you have called attention to the matter. Sow about 4 lbs. to the acre, on any kind of grain; and if you sow it on one of the last falls of snow you can easily see how thick you are getting it. Terry's favorite time to sow red clover is about the time of our last severe frosts. Whenever we find the ground all honey-combed, as it were, by the frost, with the prospect of a thaw as soon as the sun gets up, then is the time to get in your clover. The seed rattles down in these little holes made by the frost, and the thaw covers it up with damp soil as soon as the sun shines out. Have every thing all ready, and then go at it as soon as you can see, when the right time comes. Friend Terry has his breakfast put off an hour or two, rather than miss the chances of getting in his clover-seed just right. If your ground is good, so as to make a strong growth, it will pay you well to put in a sprinkling of timothy, so as to make it stand up. This matter was pretty well discussed at the Albany Convention. In very strong ground, alsike will make such a mass of vines and stalks that it is liable to rot during much rainy weather.—Raising basswoods from the seeds, so far, has been pretty much of a failure. I have just received a catalogue from George Penney & Co., Evergreen, Door Co., Wis., advertising basswood-seeds at a dollar a pound. He also has little trees for sale, and has promised to give us an article on saving and sowing the seeds, and on the treatment of the seedlings.

HOUSE-WARMING.

PROF. COOK PLEADS FOR A FURNACE, AND WOOD FOR FUEL.

I MOST heartily agree with our friends Terry and the Editor, in their position on the tobacco question. How irrational and incomprehensible, that men will, in the face of the known physical evils that attend the use of tobacco, the disgusting character of the habit, which would surely nauseate any one except that we see it from youth up, the moral obliquity, and disregard of others' comfort which its use engenders; and the worse than useless expense which goes with the habit; that any one will suffer himself to become its slave! The explanation must come with the fact that children—mere nurslings—adopt the pernicious practice ere reason and judgment are sufficiently matured to guide and control. So much the more need that we who are

parents spare no effort, either of precept or example, to hold our children, that we may influence them aright in this most susceptible period. How thankful we all ought to be, that GLEANINGS has taken the stand it has on this question! What a power for good it would be, if all our editors would join in the same blessed undertaking!

I am also one with our friends in the thought that home should be made the most delightful of all places. Only last night, wife remarked: "There are two things we will use most liberally—light and fuel. We can not afford to stint in genial warmth, or the pleasant cheer which a well-lighted room helps so materially to diffuse through the home." Wife is right. It is a wiser economy to burn a little more oil and wood, and keep the children at home, than to lose their company as they go elsewhere to burn tobacco. Why, Mr. Editor, just once fill a home with loving self-sacrifice; have ever in reach in the pleasantest room of the house—the living-room—such papers as GLEANINGS, the *Youth's Companion*, etc., and good books; have the house warm and bright these winter evenings, and we shall find it very easy to hold the dear children. Yes, this costs something, but less of both money and worry than does the street-corner, the cigar, the saloon, and, last in this awful sequence of events, the way that leadeth down to hell.

But I must differ with both our friends as to the method of heating our houses. I was brought up in the warmth and glare of the old fireplace, with its huge back-log of hickory, the ample fore-stick, and open work of crossing timbers all aglow with the leaping, crackling flames. I have used wood-stoves for years. I have used the hard-coal stove, lauded by friend Terry; I now have my office, laboratories, and lecture-room heated by steam, which you, Mr. Editor, praise as the best thing, while our present home is heated by the furnace, which you both decry, but which, in the judgment of all at our house, is by far the best way to heat our dwellings. I fear, Mr. Editor, some may be misled by what you have said—indeed, I know of one reader of GLEANINGS who is now proposing, the coming summer, to remove stoves and replace them with a furnace. He is a bee-keeper, and keeps his bees in his cellar. Yet I think he is wise, and I would not have him or any other falter in such a wise intention.

Let me briefly state my reasons for this conclusion. I think they will commend themselves to any interested person:

Steam heat is mainly objectionable in that it heats the air already in the house, and in no way effects to change it. Thus our rooms are apt to be ill ventilated, and colds and headache are the result. Again, the coils are usually not attractive, and are in the way. Once more: If the house is to be shut up, and through neglect or carelessness the steam is not thoroughly shut off, and the water all drained off, then there is liability to have bursting pipes and no end of trouble. It is also more expensive to secure a little quick heat in summer, spring, or autumn, to temper the chill of a cold morning with steam. I have a brother-in-law whose house is heated by hot-water circulation in pipes. I think the above objections all hold to this method of heating.

I object to the coal-stove heating—I mean wife and I—because it heats only a part of the house,

is a dirty thing at best—even the hard-coal dust is very pervasive and annoying, is in the way, is apt to be out of the way in cold days of summer, and is hard to start when just a little heat is desired. While the coal-stove is a little better than the steam for ventilation, it is not conducive to good ventilation. True, it draws a little of the air from the room, but in the main it heats only over and over the vitiated air, which, with these stoves, is usually retained in the rooms to be breathed again and again, thus engendering disease and enfeebled strength.

Now for the furnace. It is in the cellar, and all dust and are dirt avoided. The pleasant living-rooms are not cumbered with ugly stoves or coils. The husband can arrange the fires, and so the wife is saved to the utmost. Best of all, the heated air is drawn right from outdoors; and as it can not enter the rooms unless just so much air passes out, there is a constant exchange of air, and so our rooms are constantly well ventilated. With no trouble, every room in the house can be heated, or by the push of a lever any can be kept cool. A stick or two of wood in the furnace, on a cool morning, just removes the chill of the whole house and makes a happy household. We have had our furnace for over twelve years, and it has heated our house perfectly, has given the most perfect satisfaction, has never been out of order, and we scarcely ever go to visit our friends, where stove or other heat is used, but that we join in praise of the blessed furnace.

In arranging for a furnace, the room to contain it should be large—ours will hold eight cords of three or four feet wood, and this room should be entirely separated by a brick or stone wall from the remainder of the cellar. Thus we can keep our vegetable-cellar just as cool as though we had no furnace; and still, by simply opening a door we can surely prevent freezing in case of very severe weather. The cold-air shaft should open toward the prevailing winds—west at this place—for it opens east the strong west winds that rush around the house so suck the air as to reverse the current of hot air, and it is too expensive to heat all outdoors. But with an east opening, all will work well, even with a heavy west wind, by opening the cold-air flue into the cellar, and closing the outer opening. Yet I prefer to always take the air from outdoors. We have our chimney in three divisions—the center division carries off the smoke, and the whole chimney is kept warm. Each room is connected, by means of a register and a close pipe, with the outer divisions of this chimney. We see, then, that the ventilation is perfect. We start the fire, which heats the air fresh from outside, which passes to our rooms. This rises and pushes the cold air down. At the same time the heated chimney causes the air in it to rise, and this is replaced by the colder air from our rooms passing out. I can not see how we could have more perfect ventilation. Good ventilation means good health and long life.

We keep three rooms on the first floor, two large halls, and our children's two rooms above, heated all the time, and a third chamber when needed, and it costs us \$40.00 a year. At night I fill the furnace, close the dampers and shut the registers, except in the dining-room and sitting-room—we have no "parlor" at our house—and when I get up in the morning these rooms are warm and com-

fortable; and when I call the household, two hours later, the whole house is warmed. As I said before, we think it economy to keep our whole house as warm and cosy as possible. If we can make this the most delightful place in the world to our children, we shall have solved the problem of their habits in a most agreeable manner. Now, Mr. Editor, I am rejoicing in the hope of a visit from both you and friend Terry this spring; and if this article does not convert you both, I believe a personal examination on the spot will. A. J. Cook.

Agricultural College, Mich.

I am converted already, friend Cook; but I want to add, that steam is used quite extensively for warming a current of air brought in from outdoors, exactly as you do. We have outdoor pipes which bring in the fresh air, and pass it around the coil of steam-pipes; and just the air, and not the ungainly-looking coils you speak of, passes into the room above, as does the heat from your furnace. We have used furnaces on the plan you mention, for a good many years, but my objection is the *expense* of warming up this outer air, especially when the temperature is below zero. It takes a heap of coal or wood either to warm a large building in that way. I greatly prefer a wood-burning furnace; but in our locality it is much more expensive than soft coal, although I believe with you I would willingly pay the extra expense to get rid of the dust and smoke from any kind of coal. Our new factory is warmed by still another device. A blower run by machinery sends a blast of air (taken from outdoors) through an arrangement something like a common steam-boiler, only the steam passes through the flues, while the blast of air circulates around them. With suitable pipes we can send the hot air into any room, and it warms it very quickly.—When Dr. Miller was here he took me to task because I assumed so many responsibilities, and did so much choring about, for others. Now, if I understand it, a large part of your strength, perhaps both of mind and body, is consumed in building fires, pumping water, and taking care of the horse and cow, etc. As you get up two hours before the rest of the family, I conclude you have this two hours of hard work, down cellar and upstairs, as a regular routine each morning. If you had steam in your household, it might do every bit of this, if you except making friends with the domestic animals. Your wife could have hot or cold water taken from the well or cistern, by turning a single valve, and it has sometimes seemed to me as if the steam rejoiced in being permitted to do such service. I know all about the recreation these duties give you, but I don't believe it is good for me to be obliged to have *too much* exercise, day after day, whether I feel like it or not. Very likely, Bertie is beginning to ease his papa a little in these every-day duties, just as Ernest is now relieving me. I presume your wood-burning furnace will be most feasible for the greater part of the readers of GLEANINGS, and friend Terry's arrangement is not so very much different from it, after all. In many homes, perhaps his plan would be the best.

OUR P. BENSON LETTER.

ROOLS OF HOW TO SWARM BEES.—KONTINYUDE.

IN mi last discoarse I left you dun up in a overcoat & three (3) vales & the fokes a makin a outrajis noise. If the racket has bin kep a goin lively, it has fetcht the bees down by this time, and by this time you ar pirty warm.

The bees will be pirty shure to settel on a sour appel tree, but moar likely thay will settel onto a oke tree, pirty well up. Git a ladder & set agen the oke tree & tell the fokes to stop thair outrajis racket. Klime up to whair the swarm is hangin on a lim of the tree & shake them down onto a sheet whitch you hed plaist the sheet under the hive, & as kwick as you shake them off of the lim hurry down sose to git them in the hive. By the time you git ½ way down the tree, sumbuddy will holler "The bees is goin back on the lim," but you needent pay enny at10shun to it; klime down & see for yureself. Then you ken klime up agen & shake them off as bet. Repeat this a phue times and it will inkrease your



PROF. BENSON TAKING DOWN A SWARM.

temperreightyure. Then you ken git a saugh and saugh off the lim & thay will lite onto a appel tree whair you ken shaik them down & swarm them into the hive. By this time you will be warm. The bee is a nativ of a warm climait and likes to hev things warm. Keep on yure overcoat & things till sundown sose yule be reddi if they cum out agen. It will save the trubbel of warmin up agen. Besides you mite ketch coald if you taik them off too suddent.

If the hive is shaded poot it out whair the sun ken shine on it all day long. This will maik them shure to stay bekoz thay will see its a good warm place for winter. In a phue days, move the bees to the place whair you want them to stay. It woont do to move them the 1st day or 2 till they hev lernd to reckognize thair hive, and then thay will find it whairever you poot it.

Drive staiks in the ground 3 feet hi to set the hive onto the staiks, soze the wurms will fall & braik thair nex hwen thay cum out of the hive for exersighs. Besides, the moth miller, whitch gits into the hives and eats up the yung bees, woont hev so good a chants to find it if its up hi.

P. BENSON, A. B. S.

(Whitch is Apiculturistical Beekeepin Sighentist.)

BOOK AGENTS AND THEIR BUSINESS.

GOOD ADVICE FROM DR. MILLER.

WHILE the subject of book agents is up, allow me to refer to another phase. Among book agents, as in all other callings, there are good and bad people. For the benefit of two classes I want to speak. First, for the benefit of any readers of GLEANINGS who are good people, and who are book agents; second, for the benefit of any upon whom book agents, good or bad, may happen to call. I will give you an illustration of what sometimes happens.

A book agent of pleasing address, and who desires to do good by selling a good book, comes to my house and rings. The lady of the house, engaged at some occupation which she can with difficulty leave, possibly some mystery of cookery, at a critical moment when a few minutes' absence may bring disaster, stops and cleans up her hands, and, like a true daughter of Eve, looks a little to her general appearance, then goes to the door, and admits the stranger.

"Is the gentleman at home?" or if, as may be the case, he has learned my name, "Is Dr. Miller at home?"

Not knowing what may be the business in hand, she comes to me, where I am very busily engaged, perhaps with a hive open. Closing up as speedily as possible, I get myself a little in shape, go into the house, and greet the stranger, wondering whether it may be some old friend whom I do not recognize, and a little fearing it may be a book agent or an insurance agent. He commences, perhaps, by saying, "What a fine view you have from here! Really, I didn't know such a hilly country could be found in this part of the State."

"Yes, this is one of the least prairie-like parts of the State," I reply, in a manner equally pleasant with his own, at the same time inwardly denouncing myself for being a little hypocritical in speaking so pleasantly when I am really feeling cross at the interruption, for by this time I begin to feel sure his visit is not to be a profitable one for me. For some time a conversation is carried on by him, my replies becoming more and more in the form of monosyllables until finally he introduces the object of his visit. Failing in his effort, he goes away with a feeling of disappointment, possibly with a feeling of pity for me that I did not get the full benefit of the book or other article he wished to sell me, never dreaming, perhaps, that he has been doing me a serious wrong in making such demands on my time and patience. Now, good people, if you must have an agency for a book or a broom-holder, don't—I was going to say *steal*, but perhaps I had better soften it a little by saying don't *take* the time of others in that way. Make known your business at once. If Mrs. Jones comes to the door, don't ask her to send for Mr. Jones. Consult other people's convenience as well as your own. You have no right to impose on their courtesy by taking time that they would not willingly give if they knew your errand. To those who have calls from agents, I would say, the chances are so many that you will have to pay more for articles thus purchased than you would have to pay for them elsewhere, that in general you may do well to refuse to buy in all cases. Possibly one time in ten or twenty there might be a case where it would be well to buy; but if you allow yourself

to buy in this one case you will be likely to overbalance it by buying at a loss in two other cases, so the safe plan is to refuse all. Learn to say pleasantly, but very firmly, that in no case can you be induced to purchase. The agent will say, that if you do not purchase, you can at least look. Tell him just as plainly as before, that it is not worth while even to take the time to look. There is much in the positive but courteous manner; and the agent, thus good-naturedly repulsed, will go away much better satisfied with himself and with you than if you had wasted a half-hour by parleying.

To the young people who almost all, at some time, think of trying this sort of business, my advice is, "Don't." That's the general rule. There are exceptions. In a sparsely settled region where stores are not easy of access, even a packpeddler may be welcomed. But in towns or villages, or in their vicinity, there is no need of agents in general. There may be an exception, in the case of an article that the purchaser must try at his own home, the agent showing its use, or of some article which is never kept in stores.

Please don't think that I have no feeling of kindness for agents. In many cases they are impelled by good motives, and are really to be pitied. In my college days I was fortunately so poor as to be obliged to work my own way. One vacation I undertook the business of a map agent. I was about as forlorn and homesick a mortal as you could desire. I made little or nothing at the business, and was probably a nuisance to many, and of little use to any, for the maps were hardly worth the price, even if the profit did hardly pay expenses. When clothes-wringers first came out, I took an agency and sold a number at a fair profit, doing a good thing for the people and myself, but I went only a few miles from home, and in no case, if I remember rightly, did I sell to any except acquaintances. This was one of those cases where an agent was necessary to show the people at their own homes how to use the wringer.

Marengo, Ill.

C. C. MILLER.

Friend M., in the above article you strike at the real trouble in this matter of book agents, and I confess it never occurred to me before. It is this: They from the outset—at least a great many of them, and, in fact, all of them that are objectionable—pretend to be something they are not. If every book agent, when he comes near your premises, would hold out his book, and say, "Sir, I am a book agent; have you a few moments to spare to talk with me?" that would end all the trouble. Not long ago a gentleman who might have been, judging from his appearance, some distinguished statesman, desired to see me individually; in fact, he would not tell his business to any of the clerks. He put out his hand, took off his hat, and expressed great pleasure in being able to take A. I. Root, of whom he had heard so much, by the hand. Then he discoursed eloquently about the growth of our business, and giving employment to so many people, etc. When I had talked as long as I could afford to, I suggested getting to business. This man was a book agent. He left his package near the door, so that I might not suspect he had something to sell. Now, I was obliged to be rude with this man, and I confess I became exceedingly vexed when

he insisted that I should look over the pages of his book, and listen to his set speeches. Any business that will not succeed when a man announces at the outset just what his calling is, should be regarded with suspicion.

FOUL BROOD.

THE DIFFERENT METHODS OF CURE CAREFULLY CONSIDERED.

IN my article in GLEANINGS of Jan. 1 I detailed my experience with foul brood. In this I wish to present the methods I would recommend for its cure. Before doing so, a few words of comment on the various remedies may not be out of place.

First. Spraying or fumigating with salicylic acid. Neither of these methods is to be relied on.

Second. Muth's plan of removing combs, putting the bees on full sheets of foundation in a clean hive, and then feeding salicylated syrup. This is a good method; and if carefully and thoroughly carried out it will always be successful. The principal objections to it are, that salicylic acid is troublesome to use, as well as somewhat expensive, and that it is impractical to feed during a yield of honey.

Third. The Jones, or starvation plan. I used this plan extensively, because it was quick and simple, dispensing with the fuss and bother of spraying or feeding. Although generally successful, I would not recommend it. In the first place, it is a very expensive plan. The starving is a terrible tax on the vitality of the bees, and especially of the queen. I have had a number of fine queens ruined in this way. No colony seems to work with any energy for some time after being released, while they dwindle away with unusual rapidity. This is a loss, at whatever season the cure is attempted. If during or just before a honey-flow, the loss of honey may amount to more than the value of the colony. If no honey is coming in they must be fed to support and build them up. At such a time, starving is unnecessary, as the feeding of medicated food is a complete cure without the cruelty and loss incurred in starving them. Moreover, starvation is not always to be relied on, especially during a heavy honey-flow, or when they are hived on empty combs. Unless great care is taken to have all the bees gorge themselves to the utmost with honey—a very difficult thing at some times, and especially with some bees—and they are then starved to the last extremity, some of the honey will remain in their sacks. This honey, unless measures are taken to prevent it, is liable to be stored in the brood combs until used for brood-rearing, thus starting the disease anew. By feeding the bees medicated food during their confinement, this, as well as the other evils of the method, are obviated, as the feed, mixing with the infected honey in their sacks, renders it harmless—but then it is the "starvation plan" no longer.

Fourth. The Cheshire plan of feeding phenol (carbolic acid) without removing the combs. This will undoubtedly succeed when all the conditions are favorable, but I can not recommend it as practical, though a more extended experience might change my opinion. The amateur can afford to experiment and run risks. He who has only a few colonies of bees can usually spare the time required to cure by feeding and similar manipulations; and if he loses a large part of his honey-crop in doing

so, he does not notice it very much. But to the man who makes a business of bee-keeping, whose bread and butter depends on it, it is a matter of considerable importance whether the cure is accomplished in one day, or whether it is spread out over several months, increasing the chances of spreading the disease many times, and consuming much valuable time. He can not afford uncertainty, nor can he afford to lose his honey-crop.

In seeking for a certain, speedy, and inexpensive cure, I observed that, during a heavy honey-flow, the progress of the disease was measurably abated, except in the worst cases, and some colonies cured themselves. Why was this? I decided that the disease was generally conveyed and propagated through the medium of honey. When honey is plentiful, the larvæ, instead of being fed on honey which has been in the hive for some time, and thus become infected, have their food prepared from honey fresh from the fields, with which every bee is gorged. The best time to attempt a cure is when nature is inclined to assist.

I noticed, too, that "starved" bees, released on combs, frequently had the disease again; those hived on full sheets of foundation, very seldom; while none of those compelled to build their own combs showed any trace of it. This convinced me that any plan which would prevent brood-rearing for several days, at the same time using up the infected honey from the old hive, would render the bees incapable of transmitting the disease. The most practical way in most cases is to compel the bees to build a new set of combs.

HOW TO CURE FOUL BROOD.

As soon as you discover the presence of foul brood in your apiary, make up your mind that you have to deal with an enemy that will require your utmost care and vigilance to subdue. Remember that prevention is better than cure. Foul brood is probably more often spread by careless handling than in any other way, so be careful that, in your efforts to cure, you do not spread the disease.

To start with, get a supply of carbolic acid. You will do best to buy it in the original bottles, holding a pound each, which should not cost you over 75 cents. If you buy a less quantity it will be more or less diluted with water to keep it liquefied. Find out what per cent of water there is in it, so that you may know what you are doing. There is a great difference in the quality of the acid. I have used that from several different manufacturers, Graesser's proving the best. Make a 3% solution of the acid. If you have not the apparatus for accurate measurements, take a tall bottle and measure into it carefully 100 spoonfuls of water, marking with a file the height which it reaches. To make a 3% solution, put in three spoonfuls of acid and fill up with water to the mark. This solution is for washing your hands, implements, etc., after any work with diseased colonies. You will do well to have a special smoker, knife, brush, etc., to be used only with affected colonies. Remember, the disease is very contagious, and may readily be carried on the hands or any implement. Just how far this contagiousness goes I can not say; but to be on the safe side I would disinfect every thing that has come in contact with any part of an infected hive before using it in other work.

The best methods of cure will vary according to the season. The best time is when honey is coming in freely. At such a time, prepare a hive as follows:

Contract the brood-chamber to four or five Langstroth frames, according to the size of the colony. Have in these frames nothing but starters of foundation, $\frac{1}{2}$ inch wide. Place over the brood-chamber a queen-excluding honey-board, and above it room for surplus, according to the needs of the colony. The sections may contain full sheets of foundation. Put this hive on the stand of the colony to be cured, removing the ashes, sand, or whatever you have in front of the entrance, replacing with fresh. Shake or brush the bees down in front of the hive and run them in. In all this, disturb the bees as little as possible, so that they may not fill themselves with honey. The philosophy of the method is, that the bees are compelled to build considerable comb before they can rear any brood. This consumes what honey they have in their sacks in wax-making. If any remains unused it goes into the boxes instead of being stored in the brood-chamber, and thus becomes harmless. In very bad cases it may be well to hive the bees in an empty box or old hive for two or three days, then shake them out and melt up the comb they have made, into beeswax.

If honey is scarce in the fields, put the bees in an ordinary-sized brood-chamber, on full sheets of foundation, and feed them phenolated syrup until they are self-supporting. To prepare this, take honey, or syrup of the same consistency, and add one-sixth of one per cent of carbolic acid. Thin this down, as required, for feeding.

The combs from which the bees were shaken may be tied up over other colonies which have the disease. Put them three or four stories high. As soon as there are bees enough, shake the queen and a good-sized colony of bees into a wire-cloth box, and, after one or two days' confinement in a dark place, hive them on a new stand. Ten days after the queen is removed, give the old colony a queen-cell or young queen, as those they raise may not hatch. In ten days more, treat them as first described. Extract the honey, boil it, and make the combs into wax. Be very sure to disinfect thoroughly every thing that has been used in doing this; and be sure, too, that no bee gets a taste of the honey in all your operations. There is so much danger in trying to do any thing with the combs, that, unless you have many, you had better burn them up.

The hives may be disinfected by thorough boiling. Scalding will not answer. A little lye or wood ashes in the water will take the propolis off clean. If you have not facilities for boiling hives, add 5% of carbolic acid to strong soapsuds, and scrub the hives well with the mixture, rinsing afterward. I think I would rather depend on this, if thoroughly done, than on boiling alone.

In conclusion, I would say that, if you are careful, prompt, and thorough, you can cure foul brood. If you are not so—and most people, I believe, are not sufficiently so until they have had some costly experience—you had better not try it, unless you have considerable at stake. Indeed, in any case, if you have only a few cases—say not over 5% of your apiary—and are sure there are no more in yours or your neighbor's apiaries, I should advise you to destroy them—bees, hives, and combs, if you can do so without handling them. If you are obliged to handle them, you might as well cure them.

J. A. GREEN.

Dayton, Ill., Jan. 10, 1887.

Friend G., I believe you have carefully

covered the ground, and, as far as our experience goes, we can agree with all that you have said. In fact, it seems that we have practiced the same, or very nearly the same, method of cure which you consider most effective. Come to remember, in a private letter you gave us a few suggestions at the time we were battling with the disease. After receiving said letter we abandoned starving the bees, and, instead, put them into clean hives where they were compelled to build combs, or, rather, work out foundation. However, we gave frames with full sheets of foundation, and all colonies so treated were cured. Perhaps in the advanced stages of the disease, starters only would be preferable. We did not use carbolic acid, as you recommended, though we exercised extreme caution, even burning a tool that had by accident received a possible taint of the disease. Your statement, that starvation weakens a colony, is very true, as we are satisfied from repeated experiments. In regard to cleansing the hives, we have, as you know, used steam, and hives so disinfected have not as yet given us any trouble.

DRONE COMB.

FRIEND DADANT GIVES US SOME VALUABLE IDEAS IN REGARD TO IT.

THE above subject, treated by Mr. Hutchinson, in GLEANINGS, Nov. 15, drew my attention, and incites me to redress some, to my mind, false notions accepted as truths by about every bee-keeper.

1. A swarm, hived on empty frames, always begins its construction by worker cells.
2. If the queen of a swarm is removed, or dies, while the bees are building, all the combs, made during her absence, will consist of drone cells.
3. If the queen of a swarm is very prolific, very little drone comb will generally be made by her bees.
4. If, on the contrary, from old age, or from some other cause, the fecundity of the queen is deficient, her bees will fill the hive with a quantity of drone comb.

I am persuaded that every true bee-keeper will admit the above, premises; from which I draw the inference, not only that the presence of the queen in the hive compels the bees to make worker cells, but that they rush into the building of their preferred (store) cells as soon as the queen ceases to control their work; for, a very prolific queen, having to wait for cells, is all the time watching the work of her bees; while a slow-laying queen is soon left behind. Then her workers, acting without control, hasten to build drone comb, which would be more appropriately named store comb. Such actions prove, without possible contest, that there are two opposite preferences during the building of comb, the preference of the workers for store combs—a preference which bows before the desire for worker cells manifested by the queen, who exercises her sovereign authority in this one circumstance only.

The deficient prolificness of a queen is not the only cause which allows the bees to build too many store-cells; for we meet with swarms which, although having very prolific queens, have constructed a large amount of drone comb. Such a fact

is not of rare occurrence, and can be easily explained. We have put a heavy swarm in an empty hive, whose frames can admit 100,000 worker-cells. The bees hasten to build combs at the rate of 3500 cells daily; the queen follows them, laying in every cell as soon as half constructed. Such going, hand in hand, of the queen with the workers, lasts 15 days; then the flowers, becoming scarce, the building ceases, together with the laying of the queen. Six days after this interruption, the hatching of eggs, laid on the first day, begins, leaving, every day, 3500 cells empty. If this dearth of nectar continues for 15 days more, then 40,000 cells, of the 50,000 which had received eggs, are ready to be filled again. If, at that time, some other flowers have begun to give honey, the laying of the queen is resumed, together with the building of comb. But the queen is no more near the builders, to require worker cells; she is far away, laying in the first comb. Then the bees, no longer restrained by her presence on the spot, fill, with store-combs, the half of the hive, which, so far, had remained empty. Had the queen rejoined her bees after a while, the building of worker comb would have been resumed, and the hive would show a patch of store-cells in the middle of its worker combs.

Every bee-keeper has noticed such irregular building of combs; but nobody, so far, has tried to explain it. In fact, it is inexplicable by any theory other than the one which I have just developed. We are accustomed to endow bees with so much knowledge that this theory could not come to the mind of our best authorities in apiculture, on account of its extreme simplicity.

The facts related above show that the circumstances of the building of worker and drone comb vary *ad infinitum*; and it is to such varied conditions of building that the diversity of results, as described by Miss Cora Major, page 716, is due, and not, as Mr. Hutchinson supposes, to the foresight of bees, who, "knowing that their queens are old, have in mind the superseding of them, and think that drones must be provided for the fecundation of the young queens."

In the experiment of Miss Cora, 10 swarms had built very little or no drone comb; 5 had from one-fifth to one-half of the space given, filled with it. If we admit the idea of Mr. Hutchinson, we have to acknowledge that the bees of these five colonies were very far-sighted; for, the life of a queen lasting, on an average, about 36 months, the 15 swarms had less than one queen to supersede every two months. Then the workers, of some of these five colonies, prepared comb, to raise drones, 8 or 10 months previous to the death of their queens; while some of the 10 colonies, which did not prepare any drone combs, or which prepared only a few square inches, could repent of not having prepared themselves for the emergency, if, for some unexpected cause, their queen had to be replaced.

I had just written the above when I saw, in *GLEANINGS* for January 1, page 51, the relation of an experiment, made by Mr. J. A. Buchanan, which confirms my theory.

A large swarm had been hived on 10 Langstroth empty frames. Seven days after, the hive was entirely filled with $\frac{3}{4}$ worker and $\frac{1}{4}$ store cells. Mr. Buchanan cut out the store, or drone combs, which were rebuilt by the bees, with worker and a little drone comb. These last having been removed also, the bees rebuilt them also with worker comb. Every

bee-keeper has noticed, that, when drone comb is removed from the hives, the bees, in nearly every instance, build nothing but drone comb in its place. Then why did the bees of Mr. Buchanan act differently? My theory explains this fact, not only easily but conclusively. A ten-frame Langstroth hive has room for about 80,000 worker cells. Then the bees of this swarm, having filled the hive in seven days, had built about 11,600 cells every day, on an average. Of course, the queen was unable to fill so many cells as soon as they were constructed. But such a fast building is always caused by a heavy crop of honey. This honey, stored in the cells as soon as they were built, had helped the queen to follow the builders with her laying during the four first days.

If we suppose that the queen had laid 3500 eggs daily, there were, on the fourth day, 3500 hatched grubs to nurse. But this nursing, consuming honey and pollen, increased the number of empty cells, in which the queen could lay. Besides the ripening, or evaporating, of the honey gathered during the three first days, and the subsequent transporting of this condensed honey in the upper cells, offered also to the queen a quantity of empty cells, that she was no longer able to fill, without ceasing her control on the builders, which, unrestrained, began to prepare drone-cells. The removal of those store-combs, by Mr. Buchanan, three days later, delayed the workers and allowed the queen to regain her place among the builders, and to obtain the building of worker-cells. But the queen was soon again left behind, and the building of drone comb was resumed. The second cutting of drone comb, by Mr. Buchanan, disturbed again the bees, which were soon overtaken by the queen, and compelled to finish their building with worker-cells. Had Mr. Buchanan postponed, for 21 days, the removing of the store-combs, the queen, having daily at her disposal about 3500 cells from which the first-laid eggs had emerged, the workers would have replaced with drone-cells all the combs removed.

From this interesting experiment of Mr. Buchanan, coupled with my theory, we can draw the inference that, if we desire to have the drone comb of a hive replaced with worker comb by the bees, we ought to deprive the queen of all the empty cells before introducing our empty frames, remembering that, if the queen had cells in which she can lay far from the builders, the bees will construct store-cells exclusively.

CHAS. DADANT.

Hamilton, Ill.

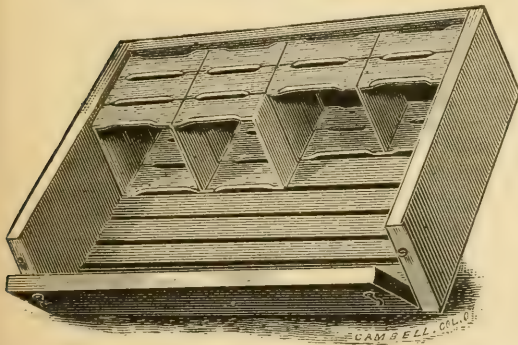
Friend D., your idea is ingenious and wonderful; but I confess I shall want to think about it and watch it a little before I am ready to accept it. So far as I have observed, I have not been able to learn that the queens control or "boss" any thing about the hive. I do know this, however: After she is taken away, the bees, with very few exceptions, change from worker to drone comb. I have seen one or two exceptions, nevertheless, where bees built worker comb at the same time they were building queen-cells. It used to be said, that the queen led out the swarm; but in most cases it has seemed to me that the bees led out, and the queen followed along with the rest. I should think it quite likely, that, if the queen were in one part of a large hive while the comb-builders were in any other part, they might build drone or store combs. If this be true,

I should expect the bees to fill surplus-boxes with drone or store comb, instead of worker-cells, especially if the queen were absolutely compelled to remain in the brood-chamber by means of the perforated zinc honey-boards. I believe others besides friend Hutchinson suggested, years ago, that the bees build drone comb whenever they are thinking of swarming, or rearing another queen; therefore if their queen seems to be failing or defective they would instinctively build drone-cells, and seem anxious to have the queen fill them with eggs. This whole matter is deep water, and it serves to show us how little we *do* know in regard to the workings of these wonderful insects, if nothing more.

EATON'S SECTION-CASE.

WHAT TO DO WITH HALF-FILLED SECTIONS LEFT OVER FROM THE PREVIOUS SEASON.

THE cut below represents my new section-case; not so new, either, as I have used it for the past four years on more than one hundred colonies of bees in obtaining comb honey. Success depends largely on the style of hive used, a thorough knowledge of the time, and how to manage; and last, but not least, the manner of arranging the sections on the hive in order that the bees may have perfectly free access to them.



A SECTION-CASE FOR TIERING UP.

There are a good many little points to be got at to make a receptacle for sections on a hive, the most convenient for the bees and the apiarist. This is what I have aimed at in my case; and I like it much better than other cases I have used. There are some who use and prefer single-tier wide frames. Well, with wide frames we have to have an outer case to hold the wide frames, besides all those wide frames to take care of out of season. You see, by the above cut, that all I have is the outer case and the bottom-bars of the wide frames combined; the sections sit on the slats the same as they do in the wide frames. This keeps them clean on the bottom, the same as with a wide frame. With the latter you can use separators, which is difficult to do with most of the popular section-cases in use. I have no use for separators. By using full sheets of foundation in sections seven to the foot, and leveling the hive with a spirit-level sidewise, and tipping it forward slightly, you will have ninety-nine out of one hun-

dred nice straight sections that you can crate. But if you use wider sections you will have to use separators. By using sections (7 to the foot) without separators they will weigh as near a pound as the 1½-inch will with separators. With my case you can use separators if desired, as well as without, by slipping a half-inch strip of tin in between the two end rows of sections, so as to hold the separators up from going down between the slats. Then as you set in a row of sections, set a tin separator in.

Now, then, there is another point, although a minor one: The sections set compactly over the brood-nest. There are no wooden partitions between each row. There is but one bee-space between the bottom of the slats and the brood-frames, the slats forming a sort of skeleton honey-board. The case is a bee-space deeper than the sections, thereby admitting of tiering up to any desired height. The slats make the case solid and substantial. If such a case were nailed up solid, and the sections fitted in it, the first sections would be very difficult to remove; and as there are slats under the sections you could not invert it and drive them out. I found that, by such a practice late in the fall, with other cases, when the weather was cold, it loosened and broke out comb, so I provided a hinged side which opens out, thereby loosening all at once. If you wish to remove any sections on the hive you can open the side and remove sections without taking it from the hive. I use an eight-frame Langstroth hive for comb honey, and make my section-cases of the same material and size of the hive. The crates are painted, and when set on the hive they form part of the same. When I tier up, the cover raises and sits on the case the same as on the hive. You see such a case protects the sections the same as the main part of the hive. It is not patented. You are free to use it, if you see any points of excellence in it. But it would be difficult to make one from the above cut, without having a sample, as there are important points of construction that do not show.

HOW TO GET BEES TO COMMENCE WORK IN SECTIONS, AND USE PARTLY FILLED ONES.

I am stimulated to give my plan, from the fact that, when describing it at our convention at Columbus, no less a person than Dr. Besse said it was worth his entire trip to the convention; so it may be of use to others, and especially to Bro. Dibbern, who, in the *American Bee Journal* for 1886, page 774, recommends, after extracting, to cut out the comb, render the wax, and burn the sections. Well, of all things such a plan would be too extravagant for me. There is nothing new about using half-filled sections of the previous year, to induce bees to go to work in the sections; but it is generally recommended to extract the honey, then place a few of them in the center of the first tier of sections; in this way you get the center of your case filled first, the end rows being left until the last, and sometimes they are very slow to finish them. My way is, not to extract the honey at all. It is too tedious; besides, it is of more value in the comb than out; but when you are ready to put on your first sections, uncap some of these half-filled sections, and fill in the two end rows of your case. Now fill the two center rows with foundation. These freshly uncapped sections will attract the bees to work in the ends of your case at once, and they will not leave the center alone very long. If this is done just as the honey-flow starts, at the proper time they will finish the entire case about the same time. These half-

filled sections will be finished out with new honey, and be recapped nice and white. You will be surprised to see in how short a time you will have nice new honey for the market. Now, some will say that that old honey in there will be inferior, and will be noticed by my customers; but such has not been my experience. If there are any uncapped cells that have granulated, the bees will work it over, taking out the granules. I have from 1500 to 2000 of these unfinished sections, left over from the previous year, which I consider very valuable.

Bluffton, Ohio.

FRANK A. EATON.

OPINIONATED BEE-KEEPERS.

MISS NELLIE LINSWIK HOLDS UP A LOOKING-GLASS FOR US.

LAST May I was called suddenly east; and though I had expected to return soon, the summer passed and November had been ushered in before I walked once more the then quiet aisles of our apiary. One whose summer work for fourteen years has been chiefly among the blessed bees, can not drop all connection with them, and at the same time drop all thought concerning them. Flowers bloomed and faded the long summer through, but ever with a breath of their fragrance came a thought of the bees. The berry-bushes among the lovely rock-strewn hills and valleys of New Hampshire grew white with bloom, but they brought no thought of the luscious fruit to follow as I watched the bees that hovered over them. Later, 'mid the Green Mountains of Vermont I stopped to lay my ear against the rough bark of the basswood, if so be I might hear murmurous music from the nodding blossoms high above me; and, later still, in New York, the lovely plumes of the goldenrod sent my thoughts flying back to my own distant apiary, with a wonder if there the bees might not be gathering amber-hued honey.

But it was in New Hampshire I met my first brother bee-keeper. He walked in one evening with business written upon every line of his face, and fixed his keen eyes upon me. "Your cousin here says you're a bee-keeper, and what you don't know about bees ain't worth knowing. So I'd just like to have you step over to my place, and look at my bees, and tell me why they don't work."

I took the compliment with a grain of salt, doubting much if my cousin could distinguish between a honey-bee and a hornet, but gladly promised to go over and see the bees. Better far for my reputation had I never gone near them!

The next morning I opened the neighbor's gate, and went up the little rose-bordered path to the house; then turning, with a bee-keeper's instinct, I passed around to the rear, and found myself standing under wide-spreading maple-trees in whose cool shade stood the bee-hives. They were the first I had seen since leaving home; and with unspeakable delight I sat down on the soft grass by the side of a hive to watch the busy workers. The morning air was heavy with the fragrance of white clover, and the more exquisite fragrance of the wild grape that trailed its long branches over the stone walls in every direction. In and out in a ceaseless stream went the small toilers of the hive, now brushing my hair as they passed, now dropping, tired and heavy laden, for a moment's rest on dress or hands. A voice at my side broke the quiet.

"So you've found them? And now I'll be obliged if you'll tell me why they don't work."

"Work! But, indeed, they *are* working," said I, with decision.

A sarcastic smile curled his lips. "Yes," he returned, glancing from hive to hive, "I'll admit that they're going in and out pretty lively; but what I want to know is, why don't I get box honey? It's time; for there's Meador, who lives down at the Corners, has taken off I don't know how many pounds."

"How long have your boxes been on?" I asked.

"Haven't been on at all," he replied; and then, seeing my look of surprise, he continued, "you're mistaken if you think I know nothing about bees. I've kept them for some years; and, though I've got precious little honey, I've found out, among other things, that there ain't a mite of use in putting on boxes till they begin to lay out. And where do you see a hive here where they're laying out thick and heavy as they ought?"

I checked a laugh before it had passed my lips, and paused to consider. "How many hives did you have in the spring?" I asked.

"Two; and good strong ones they were."

"And now you have six."

"Yes; and that's not counting the one I gave away for the hiving!"—with a retrospective glance at a far-outreaching branch many feet above our heads. And it was then but the middle of June! The trouble and the only remedy were alike apparent; but there was small chance of my being able to make this opinionated man see things as I saw them. He was a "bee-keeper," albeit on a small scale, and he had made what he deemed some remarkable discoveries. And do we not all know that, as a rule, bee-keepers are blessed with a sublime confidence in themselves? I freely admit, that I have myself two or three pet theories of my own; and, though open to conviction, I confess that I should like to see the bee-keeper who can convince me that I am in error concerning them!

To my disappointment and vexation, the hives proved to be box hives, with all their secrets close locked within them. One hive in particular moved me with mingled pity and indignation. It was one of the old stands, and the bees were going languidly in and out, with none of the stir and enthusiasm of the other hives. Perhaps the young queen had been lost, and the doomed colony, conscious of its hopeless condition, was drifting slowly to annihilation. Think not that I made no effort in their behalf. The short lecture I delivered then and there on the necessity of movable frames, and the consequent advantage in having colonies in a condition for examination and intelligent treatment, if not a very brilliant effort, was certainly an earnest one. But my auditor listened with knit brow and an expression of disapproval. He did not want to go into the business, and he didn't want to be bothered with any new-fangled contrivances. All he asked for was just honey enough for his own use, and no one seemed able to tell him how to get it without more fuss than it was worth. I ventured to suggest that he sell his bees, and buy his honey of Meador; but I don't think the suggestion pleased him. He willingly let me put boxes, six-pound glass boxes, over two of the strongest colonies; and when I discovered in the little workshop a pan of light dry comb, taken from a late swarm brimstoned in the fall, and asked permission to put in some starters,

he watched with evident interest while I pried off the top pieces, and, with the aid of the hot kitchen stove, fastened two starters to each piece, and then pressed it carefully back into its former position. But this was all that I could do; and with the bright anticipations of the morning vanished, I went my way.

Should you ever meet him, this brother bee-keeper of the East, and should you chance to question him, I fear—in fact I am almost sure—he would tell you that what little I know about bees is, in his opinion, hardly worth the telling.

NELLIE LINSWICK.

Very good, friend Nellie. We are glad to hear about our opinionated brother down East. But quite a lot of us are just hungry to know about how that home apiary "panned out" during 1886; and what has become of your sister Cyula? Did she manage that great apiary all alone while you were down East visiting, and the men-folks were busy with the farm work?—In regard to being set in our own ways, I believe you have given us quite a lesson. I can think of quite a number just now who, I am sure, are wrong, but they are so obstinate it does not seem to be of any use to remonstrate any further; and while I am about it, I have been wondering if there are not some things in myself a good deal that way; that is, are we not all of us in danger of becoming too conceited to be taught?

THE BINGHAM HIVE.

SHALLOW BROOD-CHAMBERS VS. SHALLOW HIVES.

I NOTE your talk about "shallow hives," on pages 44 and 45. I see you have not a correct conception of the difference between Mr. Bingham's hive and my own. As I have visited Mr. Bingham on various occasions, besides enjoying visits from him, meeting him at conventions and eagerly reading his well-written literature (including his book, for Mr. Bingham is the author of a book), and, at his suggestion, used one of his hives seven or eight years, I wish to set you right regarding the difference in our hives. I will also say, that Mr. W. H. Shirley is one of Mr. Bingham's students, and used his hive several years before he bought my Glenwood apiary, thus neighboring with me, and working for me winters, and many an hour have we discussed the Bingham hive and system. Allow me to present it, and compare with my own, nearly all of which I believe will be sanctioned by Mr. Bingham, and be in perfect harmony with all he has written upon the subject.

To friend Bingham belongs the credit of demonstrating to hundreds of bee-keepers, that a brood-chamber of a bee-hive has very many advantages when made as shallow as five inches, comb depth, and that such a depth is par excellence for early breeding, wintering, or any other purpose that demands the conservation of heat. I wintered a colony of bees in one of his hives for seven or eight winters, always outdoors, with about half as much packing as my other colonies had, and with perfect success, except once. During that most dreadful winter of two years ago they came through, the strongest in my yard. Mr. Bingham's special claims in this direction are true to my experience.

You speak of it as a "shallow *hive*." The word *hive*, I think, is out of place here; let us say, "Brood-chamber of a hive," and understand each other. All "hives," nowadays, are as deep as you wish to tier them. Now for the difference.

Many times has Mr. Bingham uttered to me and others his detestation of a bottom-bar to a frame. Without such, I consider tiering them impractical. Even if a break-joint honey-board is used between each tier, combs will be fastened to it. I saw Mr. B. cutting them loose when he had his brood-chambers tiered above each other for purposes of extracting. We talked it over at the time. Mr. B.'s brood-chamber is composed of a single tier of frames, extended in length, to give sufficient chamber room at all times.

One of the new and novel functions of my hive is, that its brood-chamber is in two horizontal sections, only one of which is used during contraction, both of which are considered and sold with every complete hive. Mr. Bingham's hive can be inverted, and so can your Simplicity, as you have told us. I claim that neither are made for the purpose, nor are they practically reversible, nor is any other hive without a bottom-bar to its frames. No person interested in reversible hives or frames need fear competition from frames without bottom-bars.

I agree with Mr. Bingham when he says that his shallow brood-chamber needs no inverting. The shallower our combs are, the less liability of honey being stored in their tops; and whatever honey may be found stored in the ends of Mr. Bingham's long frames will not be taken out by the bees by inverting. If combs of the same capacity of his, but in shape of 10 x 10 instead of 5 x 20, were one-third full of honey and two-thirds full of brood, that honey would be removed by inverting that frame, at the proper time.

You speak of handling *hives* instead of *frames*, and the *shake-out function*. Nearly all hives have some little of these functions, even when never dreamed of by the maker. You know that Mr. Hutchinson and myself have often dwelt upon the subject of "readily movable hives," or handling hives, rather than frames, when referring to my modified Langstroth, and to a great extent we so use it. You also know, that when transferring from box hives we often pick them up and shake out what bees we can, especially when we see them clustered near the bottom. Mr. B.'s hives are not supplied with handles for shaking, and his manner of constructing it makes it very heavy; and although I presume, right here, I shall differ with friend B. when I say that I never would depend upon his loop-wire clamp for holding the hive together when being shaken.

It is by virtue of one inversion making the combs completely fill the frames, and that the frames completely fill the case, that the greatest perfection of the shake-out function is secured. The reason Mr. B.'s end-bars do not get "out of whack," even though no bottom-bar is used, is not only because they are short, but the top-bar is $\frac{3}{4}$ square; and, I think, in most of Mr. B.'s hives he nails this bar corners up and corners down; thus: $\diamond$ This gives him a cheap V guide, and a good one too, but no bee-space above.

I am astonished that you should mention his alternating the sections of hives. His *brood-chamber* is not in sections, and the possible alternating of several brood-chambers is just as true of any of

your Simplicities. It is true, that Mr. Bingham practiced laying his hive upon its back for making certain examinations and clipping cells, and he illustrated the performance to me in his apiary, but he didn't first shake out the bees, nor is his construction especially adapted for working from both sides, as I have made mine.

I feel indebted to Mr. Bingham for what he has done by way of clearing our minds of false impressions against extremely shallow combs. The claims of my invention are on page 14 of my circular, and I think both you and Mr. B. will see that none of them are anticipated in his hive. If you think I am mistaken with regard to his hive satisfactorily carrying out the functions of mine, I would suggest using some of each, side by side. In doing so, please use both styles just as we make them. Do not inadvertently wrong us by any alterations.

I have devised some ten or twelve different ways of constructing my hive without the outer case; like Mr. B., making the ends of the frames take the place of the ends of the case; and I have abandoned them all for what I believe to be very good reasons. You can have the reasons and the models any time you wish to print them.

In the *A. B. J.* Prof. Cook said: "If any one honestly believes it, let him say it is a worthless hive and system. But, alack the day when any considerable number of bee-keepers say it is not Mr. Heddon's."

JAS. HEDDON.

Dowagiac, Mich., Jan., 1887.

VOLATILE OIL IN HONEY.

THAT WHICH GIVES FLAVOR TO HONEY.

IN all discussions in regard to ripening honey, one essential fact has been entirely ignored, and yet the quality, if not entirely, is more dependent on it than on any other. That honey must be of a certain consistency, is conceded by all; so quality first and quantity next is what we are all in pursuit of; and how to get the latter without failure of the first, is yet an open question. Admitting proper consistency, quality, then, is due to its peculiar flavor, which is derived from the nectar of the flower.

All flowers and plants possess a peculiar and distinct odor, which is due to a volatile, or essential oil, peculiar to itself, and this same oil we find in the nectar of the flowers; this it is that gives honey its distinct flavor. When flowers are macerated in water, then distilled, the essential oil of the flower passes off with the steam, and, if condensed, the oil is found in minute quantities floating on the water; and this, as its name indicates, is very volatile; and, if exposed to the atmosphere, in time all evaporates. Thus the flavor of the honey is dependent on the quantity of this oil present in it. Some flowers possess more of it than others; and, as a natural result, we find some honey with more of a distinct flavor. If the retention of this oil is desirable, then that method by which there is the least loss is the one we are in search of. That we have not yet attained this, is evidently a fact; but that it is attainable is beyond question, and I doubt not but that careful experimenting will yet give us a standard to go by.

G. W. BRODBECK.

Indianapolis, Ind., Jan. 20, 1887.

Friend B., while some of this volatile oil

is a good thing, I believe I should, as a rule, prefer that the bees evaporate out the greater part of it. Honey newly gathered from basswood has altogether too much volatile oil to please most people, and the same may be said of the horsemint of Texas, and many other kinds of honey. If letting the honey get thoroughly ripened deprives it of this volatile oil, I should say let the oil go.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

DELOS STAPLES AND THE BLUEBERRY-BUSINESS, AGAIN.

ED. GLEANINGS:—I notice that the blueberry man has commenced advertising under a new name and address; but when the circulars come to hand they come under the name of L. D. Staples. See inclosed circular, just received. On account of new subscribers, would it not be best to caution readers of GLEANINGS? I lost some four or five dollars by investing in blueberry plants with Staples. I could get no satisfactory answer from him. I inclose an advertisement cut from one of the Jan. monthly agricultural papers, and have seen it in at least one other.

Exter, Pa., Jan. 31, 1887.

P. SUTTON.

I too, friend S., have noticed the blueberry advertisement, and I judged it was probably Mr. Staples under another address. Below is the advertisement mentioned in the letter:

BBLUEBERRY. A valuable fruit to grow for pleasure or profit. Price list free to all. An agent wanted in every town. Complete outfit furnished free. Address, Willow Ridge Fruit-Farm, Portland, Mich.

I will explain to those who have been victimized by Mr. D. L. Staples, that he does not send out any *plants* at all. He sends only some dry sticks, with a pretense of putting a little moss around them. They never grow, and he never makes any thing right. Will our friends of the agricultural press please pass him around? The circular, sent in response to an answer to the advertisement above, brings the old blueberry circular, signed L. D. Staples, Portland, Mich. He was so thoroughly advertised under his old name and address that he thinks to get new victims by the "Willow Ridge Fruit-Farm" dodge. By the way, we are very much obliged to the friends for promptly forwarding any thing that seems to have the semblance of a swindle. Let us help all honest men to live; but at the same time let us help all swindles to die, and that quickly.

Since the above was in type I notice several of the agricultural papers have also taken the matter up. Now, is it not time, dear friends, that a complaint be sent to the Postmaster-General, and that a protest be made against delivering mail matter to Mr. Staples? He has *swindled* enough people already.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Jan. 15.

CHAPTER XXXV.

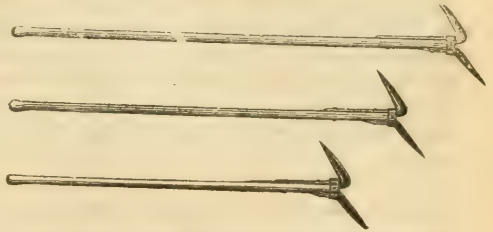
For ye are bought with a price.—I. COR. 6:20.

It is a happy thought to me, dear friends, that I am bought with a price—that I belong to Christ Jesus. The reason why it is a happy thought is because I have a right to feel that he has his plans, even for a poor humble life like my own; that he has something for me to do, and is watching me with loving care. I have felt that he called me to write this book; that it is his wish that I should write it, and that he has a message that I may, through the book, carry to you, my dear readers. "What to do, and how to be happy," is a great theme; and when I undertake to tell the people of the world—that is, such a part of the world as may be interested in listening to what I have to tell, it seems to be almost a sacred commission intrusted to me. This book is almost constantly in my mind. When I go away from home I at once begin to think, "Now, what shall I find during this trip that will be of value to my fellow-men, and that will properly come within the province of this book?"

About the middle of January I was called to a convention of bee-keepers in Albany, N. Y.; and when I started out it was with a prayer that God would help me in my feeble efforts to grapple with this great problem of something for the masses to do. In consequence of snowstorms we did not reach Albany by daylight, as we should have done had it not been for delays. For my part I was rather glad we didn't, for I could look out of the car window and catch items in regard to something to do. The first thing that met my gaze was crowds of people and numbers of horses at work on the frozen surface of the Hudson River, gathering the ice-crop. Sure enough, here is something to do in the winter time; and, like agriculture, the work seems to be a worthy undertaking. I have noticed for quite a little time past, that ice is used in many of our large hotels and eating-rooms, almost as much in winter as in summer. At the Globe Hotel, where I stopped for breakfast, the first thing the waiter did was to bring a handful of pieces of ice, not quite as large as a hickory-nut. These were put into a clean goblet, which was then filled up with water. Every guest was furnished with ice-water, whether he cared for it or not. The water was pure and soft, and I enjoyed

a good drink of it, even in winter. If you take a drink before the ice has had time to cool the water too much, it is not unpleasantly cold.

After breakfast, as there was some little time before the convention opened, I made inquiries for greenhouses devoted to raising winter vegetables. The clerk at the hotel said he did not think there was a greenhouse near the city of Albany, for such things. He said they got their lettuce, radishes, etc., from the city of New York. I knew by experience, however, that it is not well to give up in such a search, so I inquired for the market. Before I got to it I caught a glimpse of great crowds of men at work on the river again. Here was a broad field for employment, even in the winter time, so I decided to investigate. On the bank of the river were not only great numbers of sleds drawn by horses, but there were ice-cars drawn by locomotives, taking the ice away. The huge blocks were carried up the bank by an apron made of endless chains; and as they struck the platform, men and boys who were expert at the business quickly grasped the blocks with poles having steel points on the end, like the cuts below.



ICE-HOOKS, USED ON THE HUDSON RIVER.

It is wonderful to see the dexterity with which they would make these huge blocks fairly spin where they were wanted. They seemed to almost run of their own accord on to the sleds until the sleds contained all the team could well draw. The minute the sled was loaded, a trained teamster took it out of the way, and another one quickly slid into its place. One new at the business, like myself, would say that every movement *happened* to be a lucky one; but there was not any "happen" about it. They had learned the trade, and knew how. Then I clambered down the ladder on to the frozen river. The

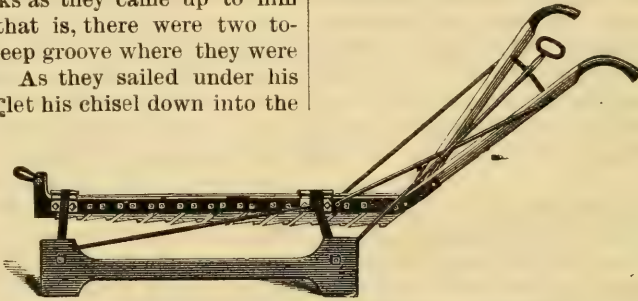
blocks of ice were swimming of their own accord again (at least it looked so to me), along the narrow channel, or canal, of clear water. Of course, they had a little push once in a while, from men stationed at intervals, armed with these same ice-hooks; but some way it happened that every time the chain apron came around it caught a block of ice just right, and up went the ice on the inclined plane. I followed out into the river to see what made those blocks sail along just so far apart, and in such regular order. Pretty soon I came to a man standing on a heavy plank laid across the channel. In his hand was a tool something like the one figured below.



SPLITTING-BAR, SUCH AS IS USED ON THE HUDSON RIVER.

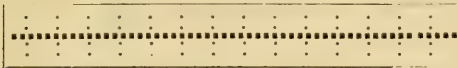
Well, the blocks as they came up to him were in pairs—that is, there were two together, with a deep groove where they were to be separated. As they sailed under his plank he quietly let his chisel down into the

that looked very much like cultivators. I asked one of them if it was as much fun as cultivating corn. He looked at me a moment, and then smiled; and his smile convinced me that he was one of *my neighbors*, even if he was away off here in Albany, while I lived in Ohio. I told him they might be thankful for one advantage they had over working in a cornfield. He asked me what it was, and I suggested that they did not have any mosquitoes or flies to bother the horses. It was a bitter cold morning, but the workmen seemed to enjoy their work notwithstanding. They did not have any boys to ride the horses. The horses were all led by men. Very likely the boys were at school, all of them, and may be a boy would not use care enough in leading a horse so as to mark out the work accurately. The cultivator used was something like the figure below.



AN ICE-MARKER, TO BE DRAWN BY A HORSE.

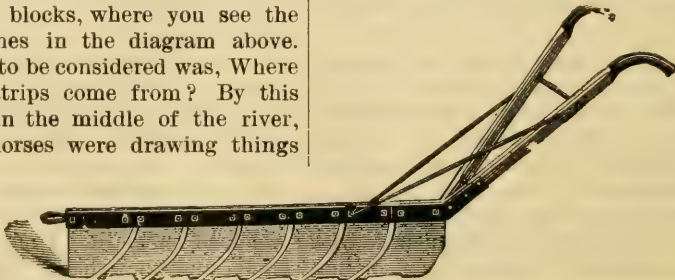
groove, and the double block was separated. A little further up stood another man with a similar tool. Now, the ice, as it came to *this* man, was in a long strip composed of perhaps 40 blocks, say 2 feet wide and 20 feet long, something like the diagram figured below.



A STRIP OF ICE BEFORE IT IS CUT UP.

Well, as this block of ice ran under the plank, whereon stood this second man, he chiseled off two blocks, where you see the light dotted lines in the diagram above. The next point to be considered was, Where do these long strips come from? By this time I was out in the middle of the river, and men and horses were drawing things

You will notice that one side of the plow, or cultivator, is a long plate of steel, having a sort of blade on each end. Well, between the handles of the plow is a rod with a loop on the end. The steel blade slides into one crease, and guides the plow while it cuts another; and when you get to the end of the row, by means of the rod with a loop on the end you throw the steel blade, or guide, to the other side, so you can go back again. This measures the blocks of ice absolutely. After this marker has passed, another horse takes the regular plow shown below.



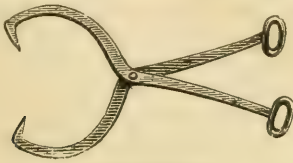
AN ICE-PLOW.

This plow will cut in about five or six inches; and even if the ice is a foot thick, or more, the ice-chisels already described cut it without trouble. After the horses have finished their work, the ends of these long strips are cut loose with an ice-saw. Then a man with an ice-chisel like the one below goes along the groove where he wishes the large cake to separate, and strikes repeated blows, say at intervals of ten feet.



ICE-CHISEL.

After he has struck one or more times, he can tell by the sound that the ice has split. A click is heard when the crack starts. If you have ever heard a pitcher break because the water inside was freezing, you will know what it sounds like. Finally, before you know it, the great cake moves off into the water, and he has no further concern with it. The men with the poles start it on its march. In loading the ice on to wagons, tongs are sometimes used, like those figured below; but the regular ice-men hardly ever take the trouble to bother with tongs.



ICE-TONGS.

Occasionally saws are used for a special purpose, like the one following.



AN ICE-SAW.

Every thing seemed to be going on so pleasantly I was wondering if the ice-business was not an exception to many of the great industries that spring up and cause trouble by strikes and differences between labor and capital. Pretty soon, however, I had reason to feel that Satan makes his way out on the frozen river, as well as into factories, mills, and warehouses. One of the men was so much intoxicated that it seemed every moment as if he would go into the water, and I was told that a great many go under the ice and are drowned. If whisky gets among such a crowd, is it any wonder? and is it any wonder that strikes and riots should come in too? So many ice-houses have been burned by mobs and rival inter-

ests, I was told that it is a hard matter to get them insured. Between Albany and New York the river is literally alive with ice-companies, and great edifices, or monstrous buildings, loom up to hold the ice-crop. A young friend whom I met later has furnished me some important facts in regard to the matter, and I will here let him supplement, in his own words, what I have already told you.

HARVESTING ICE ON THE HUDSON.

One of the greatest industries that has grown up in the Hudson Valley in the last ten years is that of harvesting the crop raised chiefly by the aid of Jack Frost: viz., the ice-crop. Immense houses, all above ground, are built all along the river, and quite close to it. These buildings are usually about 40 ft. in height, with a mansard of 10 ft. additional, which is used as a loft for storing salt-marsh hay, used for covering ice at top. Each house contains from four to sixteen rooms, each 50 x 100 ft. on the ground. These rooms contain about 5000 tons each. The outside walls and partitions are from 14 to 22 inches thick, and are filled from floor to top with sawdust. The bottom is laid with plank or boards to keep the ice from contact with the earth. The rooms have the width facing the river, and stand in two tiers, front and back. Each two rooms, front and back, are connected by a narrow opening, and are filled by one elevator. These elevators are on inclined planes running from the top of the building to the edge of the dock. Aprons are then let down beneath the surface of the water, and a pair of endless chains, having cross-bars every six feet, catch the cakes and carry them up the elevator, one, two, and three cakes to a bar. A little way up the elevator is a simple contrivance for reducing the ice to a uniform thickness. (The above is a new invention, and has not come into general use.) The cakes are carried up to certain openings to which runways are affixed, leading into the rooms. After the ice passes through the opening in the elevator it is carried into the building by gravitation. As the building fills, all lower openings are closed, and the one next higher is opened. The machinery is operated by a powerful steam-engine.

The cakes, which are 22 x 32 inches, are placed one tier, or course, running lengthwise, the other crosswise of the room, breaking joints. No cake is allowed to touch its fellow except at top and bottom, a space of 3 inches being left all round. This facilitates taking the ice out. The loss in space is more than compensated by the superior condition in which the ice comes out, very little being broken by this method of storing.

When the ice is of sufficient strength to hold a team, should there be a considerable fall of snow a force of teams is put at work scraping the ice clear of snow. (For a 40,000-ton house a large number of acres will be cleared.) This clearing is done for two reasons. 1. The ice will make faster; 2. Clear water ice is preferable to part snow ice, on account of its superior keeping quality.

When the ice is of proper thickness, say 10 to 12 inches, a field of a number of acres having been cleared, two straight lines are laid through the center, and at right angles to each other. A marking ice-plow, which cuts to the depth of two to three inch-

es, is then run in these lines. The marking-plow has an outrigger attachment which makes a scratch, or mark, parallel to the first furrow in which the marking-plow runs on returning. When the field is marked, plows cutting to 6 inches in depth are run through the furrows across and back. These are followed by plows cutting yet deeper. Two-thirds of the thickness of the ice is usually cut with plows, rendering the cutting with chisel-bars an easy matter. The plows are worked by horse power. Large blocks (12 x 20-foot cakes in size) are then sawed clear through by hand, and floated into a canal about a foot wider than the block of cakes. Care is taken to stop up with snow the end of furrows made by plows, to prevent water running in and freezing. In this wide canal the blocks are broken into strips by three or four men, with implements similar to a gardener's spading-fork. These strips, containing 12 cakes, are kept moving by men (armed with pike-poles) who stand on either side of the canal. Smaller canals, a little wider than the cakes are long, open into the larger canal, and at right angles to it. There are as many of these smaller canals as there are elevators in the building. Here the strips are broken into single cakes by a chisel-pointed bar. It will be remembered, that the breaking into strips and cakes is rendered comparatively easy since the plows leave but from four to six inches uncut. The cakes are pushed into the aprons where the bars of the elevator, above described, catch them and take them up the incline.

A house of 4000 tons' capacity requires 200 men in the building and field, and can be filled in 12 days.

HINTS TO THOSE WHO PUT UP THEIR OWN ICE.

The great difficulty experienced by many who put up their own ice, or, in fact, any who have it put up in a small quantity, is to have it keep well. A few hints, gathered from one of the most successful practical ice-men on the Hudson River, may be of value to some.

Houses built all above ground are least expensive. A wall laid in mortar, reaching below frost, and coming just far enough above ground to clear the sill from the surface, should be built. Sills may be made of two two-inch plank, spiked together, or of other material. Sills should be wide enough to take 2 x 12 studding. Wide studding are used in order to give ample space for sawdust filling.

A house 12 ft. square inside, and 10 ft. high, will hold 32 tons; same height, 15 x 15, holds 50 tons (45 cubic ft. to the ton). Siding nailed to studding inside would be best of hemlock; outside, to suit

taste of builder. Boards or plank should be laid on the bottom to keep ice from contact with earth. Care should be taken to get sawdust filling well into the corners. A door 12 ft. high, by 3 or 3½ wide, in two sections, upper and lower, is cut in one end. A cleat is nailed to the studding, just inside the door, and another to the further side of the studding, to hold short boards, which are put in as the house is gradually filled. As the courses rise, a block and tackle are used in hoisting. Swale hay or rye or oat straw makes a good and clean covering for the top. Get enough on, and settle it well.

Where a number of families in a farming neighborhood put up ice it would be economy to have an ice-plow. A first-class one, with swing-marker attachment, can be obtained for about \$50.00. By a number clubbing together, the cost would be inconsiderable. Getting in ice, like thrashing, requires quite a force of men to work it to advantage; and if neighbors go at it together in the same way, the labor will be materially lessened. With a plow and a couple of chisel-bars, very little sawing need be done, and yet have cakes in good shape for stowing. About 22 x 32 inches is a very convenient shape for handling.

A nine-inch plow will make a furrow of the same depth in ice. One stroke of the chisel-bar will detach it, and leave a good even face.

GEO. M. WATKINS.

Cedar Hill, Albany Co., N. Y., Feb. 7, 1887.

As more people are out of work during the winter than at any other time during the year, I think it will be an excellent idea to lay our plans so as to put in the time during these winter months, and the ice-business can be profitably carried on in almost every locality. The market-gardener will many times find it quite convenient to have some means of preserving perishable products (strawberries and the like), and the use of an ice-house may save him a good many dollars, even if he does not think of going to the expense of cold-storage buildings. The young friend who furnished me the letter in regard to the ice-business above, was also interested in market-gardening; and when I told him about my searches for greenhouses for growing vegetables, he said he thought he could help me, and I will tell you something about it in our next chapter.

CHAPTER XXXVI.

He that tilleth his land shall be satisfied with bread: but he that followeth vain persons is void of understanding.—PROV. 12: 11.

We were on the streets at the time; and when I mentioned it he turned abruptly and entered a green-grocer's, situated a little below the sidewalk. Just at that moment it struck me that one who proposes to deal in lettuce, celery, beets, turnips, and articles that are apt to dry up if precautions are not

taken, is very much better located in a basement than in a store level with the walk. Mr. W. mentioned the purpose of our visit, and the proprietor was very courteous and obliging. So much for having somebody who is acquainted in a large city, to assist you. The storekeeper showed us different

kinds of celery, and even gave us some sample stalks to taste and admire the flavor. No lettuce was in sight; but when we mentioned it he opened some round boxes not unlike wooden cheese-boxes, but smaller. Each box contained perhaps a peck of lettuce. This quantity is not large enough to cause it to heat, and yet when kept shut up in a box in the somewhat damp and cool air of the basement it kept in excellent order. He mentioned several greenhouses in the vicinity of Albany where lettuce was grown; but they both agreed that my best place would be to go out to "Frost's." Afterward we found lettuce for sale in the basement of the very building of the Globe Hotel; and yet the clerk at the hotel didn't think any lettuce was raised in or around Albany.

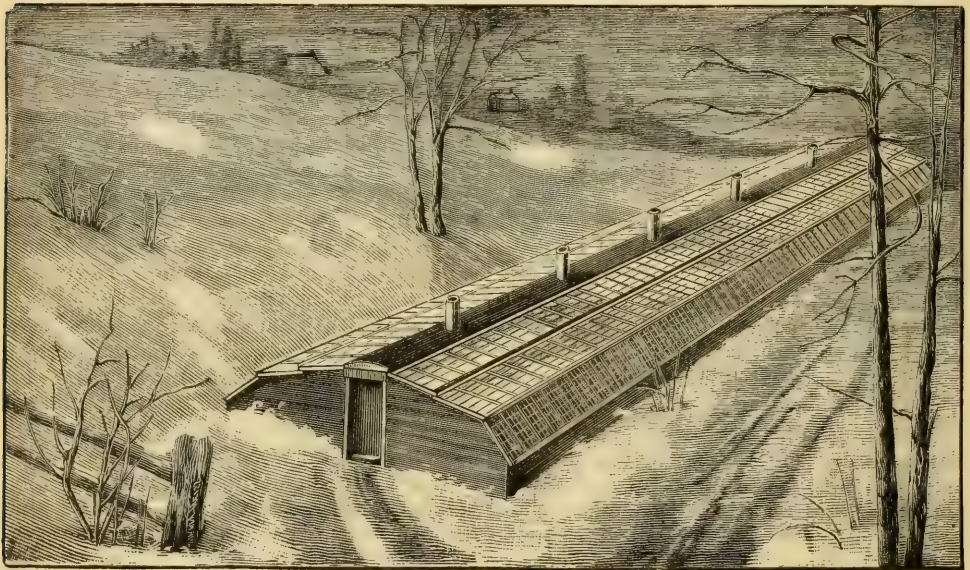
As our bee-convention was to meet at nine o'clock, I was up and had my breakfast long before daylight. I was on the stand waiting for the street-cars at the time they were to start; but after having waited for 15 minutes in the cold, and no street-car made its appearance, I concluded to be independent and go on foot, even if it was about four miles. At least one of the four miles was up hill, for Albany is "a city set on a hill," or, rather, a sidehill. How I did enjoy that walk! The hill slopes toward the rising sun; and as his rays poured full upon me, my spirits began to revive, as they always do when I can go on foot, and the sun shines. I fell in love with the small boys, and even with the dogs and horses as I passed. I even loved the saloon-keepers who stood at the doors of their places of business, pretty thickly sprinkled along the way; but I did not fall in love with the business they followed. Finally the broad grand country landscape opened before me, and here too I found throngs of people busy filling their ice-houses. The ice was taken from little streams that had been dammed up purposefully, as it seemed, to form ice-ponds. They may have been carp-ponds also, for aught I know. Just beyond where these people were at work I saw Frost's establishment, surrounded with evergreens for windbreaks. His greenhouses were mostly located on a sidehill. There were five of them in number. Mr. Frost is a practical man. There is nothing of the style of grandeur of Peter Henderson's floral establishment to be seen in Mr. Frost's gardening operations. I found him at work with his boys, among the greenhouses. The one I first entered was full of early Silesia lettuce; and for once in my life I was satisfied with the view of a real live

lettuce-house. These houses are just about as cheap as they can be gotten up; in fact, some of them had walls made by driving stakes in the ground, and filling in with coarse manure. On top of these were ordinary greenhouse frames, with just enough slant to carry off the water. They were warmed by stoves set in a hole dug in the ground. In many places the glass is so low that one is obliged to stoop to walk through the house. This gives the advantage of getting the glass close to the plants—a matter that I have emphasized strongly, as you will remember, in Chapter X. The walks are a little below the surface of the beds. In many of the houses the beds are simply banked up as we would bank up beds in a flower-garden. The house that pleased me most, however, was an asparagus-house. I have tried to give you a picture of it on the next page.

The size of this house is 125 feet long by 40 feet in width. The walls are made of very cheap material, and rise to the height of only three or four feet. It is built along a hill-side sloping to the south and east. Along the center of the ridge is a piece of shingle roof, perhaps four feet wide. This runs the whole length of the building. There are three rows of 3x6-foot sash each side of this center-piece of roofing. Now, a short man like myself can just walk under the center-piece. If he goes out under a sash he will have to stoop a little, and the row of sash next to the eaves has a pretty sharp slope so as to make the low walls around the outside answer. The sash is supported by stakes driven into the ground in rows the whole length of the building where one sash laps on to the next. These stakes are perhaps six feet apart, and they are simply cheap stakes split out like rails. Five common coal-stoves warm the spacious building. Each one is placed in a circular pit, dug in the ground perhaps two feet deep, and the pipes run perhaps fifty feet or more under the glass before they go into the open air. This takes pretty much all of the heat, without smoke, before it goes into the open air, and is economy in fuel. Now, this sash is to be entirely removed as soon as warm weather comes, to let the asparagus grow in the natural way in the open air. In fact, during the greater part of the year this asparagus-house is nothing but an asparagus-bed with low walls around it, and the strip of roof through the center. The asparagus, however, is planted much closer than in ordinary culture. Mr. Frost told me the rows

were only a foot apart, and the roots only six inches apart in the row. Of course, it is manured up to the very highest notch. The soil on these hillsides is a sandy loam, and the immense quantities of manure put on it have made it black and strong, like the Arlington soil. In order to get the roots ready for this forcing process, the whole bed is covered in the fall with the best strong manure. The fall rains and snows are permitted to cover it. In order to let the ground freeze, the manure is raked off after it has been pretty well soaked by the rains; then during the latter part of December, when every thing is frozen up solid, the glass is put in place, and the stoves started. Under the influence of the heat of the stoves

you suppose asparagus brings a bunch here in Albany during the middle of January? Only *one dollar*, dear reader. I wonder if you can guess who pays a dollar a bunch for asparagus in the winter time. Why, no less a personage than the President of the United States. Mr. Frost had been in the habit of supplying the President for a good many years; and just a few days before my visit, the President sent word that he could not find a bit of asparagus in Washington or Philadelphia, and so he had to go back to this old friend. Mr. Frost gets a dollar a bunch at wholesale for his first cuttings; and by the time it reaches the consumer it costs \$1.50. I asked him if they hadn't got to shipping asparagus from the Southern



GREENHOUSE FOR RAISING ASPARAGUS IN THE WINTER TIME.

and the rays of the sun through this low sash, the ground thaws up, and the asparagus-shoots begin to peep out by the middle of January. Great beautiful shoots were now peeping forth in a circle eight or ten feet away from each one of the stoves. The nearer the stoves were, the larger the shoots. To help pay the interest on the cost of such a quantity of glass, a crop of radishes is put between the asparagus rows. These radishes come off before the asparagus comes into heavy bearing.

Do you wonder, friends, that I inwardly thanked God for the beautiful sight spread out before me? I felt amply repaid for my four miles' walk—yes, and for my whole trip away off here to York State. What do

States, as they do strawberries, cucumbers, etc. I am inclined to think that, like celery, the cold weather of the North is needed to bring this plant to perfection; for Mr. Frost said he had repeatedly sold asparagus in the winter time, to be shipped to New Orleans.

The sun was now shining brightly through the sash. I walked up and down that glass-covered hillside, admiring the dark rich loam that formed a path under my feet—admiring the great broad healthy-looking leaves of the radish-plants as they pushed forth from the dark rich soil, and admiring the asparagus peeping forth in obedience, as it seemed, to God's command. Yes, truly has God given us dominion over the fish of the sea and the fowl of the air, and, too, every herb bear-

ing seed; and I felt, too, that it was in obedience to God's call that I was away off here on this beautiful January morning. I asked if the same plant would yield a crop year after year. He said he had found no trouble, providing he stopped cutting in time to allow them to make a good growth, and bear seed, and then keep the glass off long enough to allow the whole bed to freeze up so as to make a real winter of it before bringing in the artificial spring. Time was passing, however; and, much as I enjoyed this beautiful spot, I should soon be wanted at the bee-convention, and I began to feel that my good friend by my side feared I was a little *too much* interested. My many and eager questions might have made him feel that it was not best to give away the secrets of his trade too much, for he was evidently an old-countryman.

There was one point about Mr. Frost's work to which I wish to call special attention. He did not build these five great vegetable-greenhouses all at once. He increased his area of glass as the market demanded it, and he did not throw away hundreds of dollars until he could be sure he was going to get it back again. The closest and most careful economy was studied at every point. When I suggested a steam-boiler in place of all those stoves, he declared most emphatically that the interest of the money would eat up all the profits, and I am not sure but he is right about it. The great expense of this gardening in winter is the glass. The sash were cheap and light, and the panes of glass were small — about 6x8, if I am correct, so that a breakage could be made good at small expense; but even with his rude and cheap appliances, the quality of his vegetables was equal to any thing I have ever seen anywhere.

It may be well right here to put in a word about extravagant expenditures in business; and in advising you how to be busy I should make a sad, sad mistake if that advice should result in inducing you to get still deeper in debt, and end up by having nothing to do after all. Be very careful about making purchases, and purchase a little at a time. I often tell young bee-keepers to commence with one or two hives of bees. When these two hives of bees have afforded profit in your hands, then, but not before, increase the number. The same in regard to sash for raising early vegetables. Try a few sash. If they are a paying investment in your hands, and under your management, then try a few more, but do not enlarge too

fast. Florists tell us that if a plant is feeble, and seems likely to die, let it alone. Give it sun and air, but don't give it liquid manure, nor even water, until it starts to grow. Then give it a little water; and if that seems to prove beneficial, give a little more. When it comes to be rank and strong, and if covered with a great amount of foliage, it can take water in abundance, and not be harmed—yes, even strong manure, and it is ready to take it up and make great strong branches and leaves. So must the young gardener start. Giving him money or credit would be like the strong manure or guano water to the feeble plant—it would kill it outright. Get a healthy growth started first. I would not even buy seeds or tools without carefully considering the matter.

Only last summer a bright intelligent young man came to me for vegetable-plants. He paid cash down at first, and seemed to be enjoying his work, and doing well. Finally an opportunity offered for him to do quite a business, but he had not the money to pay for his plants. Contrary to my better judgment I gave him a few weeks' time on them. Then came severe droughts and other discouragements, and he was obliged to give up the business without being able to realize enough to pay his honest debts. I meant to do him a kindness when I trusted him, but I fear it was an unkindness. Don't go in debt, boys. Use wisely what money you have got, and use it judiciously; but don't use money you have *not* got.

At our teachers' meeting the other evening the matter of buying lemonade, soda-water, and the like, came up. One of the teachers surprised me by a remark something like this:

"My friends, I would almost as soon see my boy buying beer and cigars as to see him buying soda-water, lemonade, and pop, for it is only a question of time. Standing around a bar, getting drinks, and treating each other, is going through the motions that lead to intemperance and crime."

I was a little surprised, and turned to an old gray-headed deacon who has been many years of his life superintendent of the Sunday-school, and I waited to hear him tell our young friend that he must not draw the lines too close; but, to my surprise, he smilingly said he felt just about as the brother had expressed it. I have been thinking of it since, and it startles me somewhat. Is it wrong to buy lemonade? Well, my friend, I feel pretty sure of this: If a young man were coming to me for advice, and he were

starting in the business of gardening, I should feel a little discouraged to see him buying lemonade at a restaurant. He can not afford it. Ernest just now informs me that President Fairchild, of Oberlin College, once told the students that they could not afford to buy lemonade by the drink. Lemonade is beneficial to the health, without doubt, and the use of lemons in the family is to be recommended; but you can buy them by the dozen, so the expense is not more than two or three cents each for nice ones, and a good lemon will make a fair pitcher of lemonade for a small family. When we have strawberries, currants, pie-plant, and such like tart fruits and vegetables, they take the place, to a great extent, of the lemonade. The most dangerous part of this practice, however, of buying drinks—even temperance drinks—is the fashion of treating. I have known farmers' boys to be induced to use their hard earnings to treat a lot of girls to ice-cream or lemonade, when the boys could poorly afford it. Your comrades may call you stingy; but it is far better to be called stingy than to have it said you are not able to pay your honest debts, or to clothe yourself decently, and get a tolerable education.

Last summer I found that one of the boys who went with our fruit-wagon was buying lemonade almost every day, and his wages was only $7\frac{1}{2}$ cents an hour; and I knew that, after paying for his board and clothing, he could not *afford* to buy lemonade; and when I heard that he was not only buying it for himself, but was treating others, I decided I could not keep him. These are little things, dear friends; but it is little things that turn the scale between success and failure in life.

In speaking of the ice-crop on the Hudson River, I alluded to the fact that ice is getting to be a thing of every-day use. Well, I believe it is a fact that good drinking-water, cool and refreshing, is one of the great agents in discouraging intemperance. I was once in the habit of drinking beer to some extent. It was recommended by our family physician, and I thought I needed it. A great many times, when I felt as though I must have it, I found that, by taking a drink of ice-water, I did not care particularly for the beer, after all; and no doubt

thousands will find it easier to break away from these habits where nice cool drinking-water is always at hand. The Women's Christian Temperance Union is doing a great work in providing convenient and attractive drinking-fountains. Putting up and filling ice-houses may greatly help this work around our homes; and what other one thing is it that makes a place more homelike than sparkling water and a bright tin cup, not only to invite the members of the household, but the wayfaring man as well? Dear reader, is the nice tin cup with the water to accompany it one of the adjuncts of your home?

I do not know how my friend Frost stands financially, but he is a hard-working man, and one who makes his money by the sale of fruits and vegetables, and I have never visited any one where there was such economy practiced in every thing as at Mr. Frost's. Every thing that was not in actual use was carefully put away under cover, and yet there was no extravagant outlay of money anywhere. He has a pretty residence, and a nice yard, but nothing to indicate that he wished to make a show or any great display in the world. The evergreens were beautiful, but it was evident that they had been planted as windbreaks to his greenhouses, as well as for ornament.

Twenty-four hours after my visit to the asparagus-house, I was talking the matter over with Peter Henderson. Said he, "Why, Mr. Root, you have just given me information on a point I particularly wanted to know about. It is this matter of giving plants their regular winter rest, or nap. When your name was handed me I was just dictating an article to the stenographer, on this very subject. We florists have found to our sorrow, that if this winter rest is not given to plants that demand it, sooner or later our stock will run out. I should not have thought it possible for Mr. Frost to get a good growth, year after year, in this asparagus-house, but with the brief natural winter he allows them before commencing to force them by an artificial spring, it is probably practicable. We have just decided that something of the same kind must be managed with our violets that we force year after year for early spring bloom."

To be continued Mar. 15, 1887.

WHAT DOES IT COST PER POUND TO PRODUCE HONEY?

E. FRANCE TELLS US WHAT IT COSTS HIM PER POUND.—OTHER INTERESTING FACTS FOR THE TRADE.

IT is not a very easy task to make out just what honey does cost per pound. In the first place, we have got a good deal of money invested in bees and hives—buildings, wagons, machinery, horses, and fixtures of one kind and another that we have to use to run the business. All these things cost money; and it takes no small sum, either, to run 500 colonies of bees. The interest on the money, and the wear and tear of the fixtures, will be about as much as the actual cost of gathering the crop. But let us see about what it did cost us to gather our last crop, aside from the above investments.

Eight boys' wages for 27 days.....	\$108.00
Board for the 8 boys, 27 days.....	80.00
1 man at \$1.50 per day, 27 days.....	40.50
117 barrels, at \$2.00 each, to hold the honey..	234.00
Rent for 5 yards of bees, away from home.....	75.00
1 hired team at \$1.50 per day, 27 days.....	40.50
Oats for 4 horses, 2½ bu. per day for 30 days, at 35 cts. per bushel.....	26.25
Hay for 4 horses, 30 days.....	15.00

Total cash paid out for the crop.....\$619.25

If we add \$18.00 more to the above figures, the cost would be just about one cent and a half per pound, as the amount of the crop was 42,489 lbs. of honey. Now, besides the above expenses, I have figured up, at one-third less than cost, the worth of the investment in materials, such as land (one-half acre at home), buildings, bees, hives, wagons, two horses, extractors, foundation-machine, and a great many other fixtures, too numerous to mention. On this amount I computed the interest at 7 %. I then added one-half the amount of the interest, for the wear and tear of the fixtures. Then put in \$300 for the pay to E. France & Son for caring for the bees, and overseeing the business for one year. To these items I put in \$50.00 for foundation used. The total of all these amounts to over \$800, or very nearly 2 cents per pound for the cost of land, tools, fixtures, etc., in the production of honey for the year 1886. Add to this the 1½ cents (the cash paid out for the production of a single pound of honey), and we have the total cost of the crop at about 3½ cents for a single pound. But, remember, the year 1886 was an unusually good one for honey. After we have secured the honey it is a long way from being cash. It has to be sold. But it is not like a bed of strawberries. We can take our time to sell, any time during the year, and we can keep it over if we don't sell the first year.

BLACK BEES REPELLING MOTH MILLERS.

I will just say, we have no trouble with the moths or worms in our hives. As long as a hive contains a good strong colony of bees there is no danger of moths. Keep the bees strong, and they, whether blacks or Italians, will keep clear of moths. I see but very little difference. All the trouble we have with the moth is to keep empty combs from being destroyed until we can use them. We winter all our bees outdoors, and we are not one of the lucky kind who never lose any bees in winter. We always lose some. If a colony dies before we are done with zero weather, the worms, if there are any, freeze to death, eggs and all. Such combs we can keep in the hive, shut up tight until July. But if a

colony dies, or swarms out in the spring, after the cold weather is over, the combs left without live bees will soon be wormy. It will be the same, whether they were left by black or Italian bees. I don't see any difference. We have both kinds of bees, and, of course, have a better chance to know than we would if we had only one kind. There is a great deal said about the Italian bees being moth-proof. But a large part of such talk is from those who keep only Italians. If they are kept strong they are safe, and so would be the blacks. Now, I don't want any one to think that I am opposed to the Italians. I am not, by any means; but I do think they are overrated. Still, I think the bee-business has gone ahead faster than it would without them, for this reason: *They are handsome.*

If I buy a queen, and pay a few dollars for the one bee, I shall be very likely to give her the best of attention, make as much out of her as possible, raise several queens from her, and those queens have to be supplied with bees. First you know there is a nice apiary built up, when, if the same queen had cost nothing, there would not have been very much interest taken in the matter. As for the blacks being worse to rob than the Italians, I don't see it. But we scarcely ever have any robbing, as we have no occasion to work with the bees when there is no honey coming in.

FRANCE'S HONEY-EXTRACTOR.

In your notes on my article in GLEANINGS for Dec. 15, page 977, you ask a few questions which I will try to answer. First, about my home-made extractor. It is essentially the Chapman extractor with France's improvements to make it suitable for our work. The first extractor I got was a Winder machine, made for me after I sent him one of my frames. The whole can whirled around. There was a hole in the center of the bottom, about as large as my finger, for the honey to run out when the machine was at rest. I got along with it as long as I was alone, or had one hand to help me. It bothered me a good deal about choking up—the outlet was too small. A little piece of comb, or some loose cappings, would choke it up, and then we would have to punch it out. One of my neighbors has a Chapman machine. The can sits in a frame, has a gate under the bottom to draw off the honey, and has a revolving comb-basket inside. I liked that better than my revolving can, so I sent two frames to Mr. Chapman to have him make a machine suitable for my frames. As my frames were large, the machine would have to be of an extra size. I told him to make the comb-basket out of wire cloth, three meshes to the inch. In due time I received the machine. It was a big improvement over my old revolving can, but it did not fill the bill. First, the wire cloth in the comb-basket was five meshes to the inch instead of three, as I ordered. The trouble was, our frames stand on the bottom, and have three heavy nails driven into them to keep them apart. Those nails would go through the cloth, and bothered me to get the comb out of the basket. A three-mesh wire would let the nails out easily, and scarcely ever make any trouble. The honey-gate was too small—it would choke up as badly as our other machine. I took the gate out and put in a larger one. I use a two-inch gate. When we raise the handle of that, the honey will run, and no small matter will clog it up. The comb-basket was too small for my frames. A clean frame, with no comb built on top or sides of the frame, would

fit first rate. Those were my objections. I make the same machine, but make the can one inch deeper and one inch wider; comb-basket (wire cloth, three meshes to the inch) one inch deeper and one inch wider; and put in a two inch gate. We like the Chapman machine the best for our work of any we ever saw; but if I make them I can make them to suit me. We make for our own use only, and don't make to sell.

E. FRANCE.

Platteville, Wis.

Friend F., you have given us an excellent summing-up of the cost of liquid honey. You say, however, the past season has been an extra good one. Now, it is quite likely that, during a poor season, the honey might cost as much as you get for it. In that case, however, you will have your salary for yourself and son, which is worth something. I don't believe it is time to stop until the cash out exceeds the cash in. In that case you would have nothing at all for your year's labor, and, of course, there must be retrenchment sooner or later, or else a winding-up of the business.—You make a point in regard to the honey-extractor, friend F., that is worthy of notice. If wire cloth with only three meshes to the inch, instead of four, such as we use, answers every purpose of an extractor, I should think it would be preferable, because the honey would pass out more freely. Is it not true, however, that there is more liability of the wire cloth sinking into the combs?

MY BEE-STING THEORY.

W. F. CLARKE'S REPLY.

FAR be it from me to "take it unkindly" that friend Savage or anybody else should "question the scientific accuracy" of my bee-sting, hibernation, or any other theory, especially when it is done in a vein of good-natured pleasantry. In fact, I rather enjoy that sort of thing. But I fail to see how the title, "Bees vs. Beavers," applies to the subject in hand, for I do not know of any antagonism between these two industrious races. There is resemblance in some respects. Bees work like beavers, with unflagging industry and indomitable perseverance. Perhaps, also, they work like beavers in making use of their tails. But this is the point in dispute, not between bees and beavers, but between bee-keepers like friend Savage and myself.

After a quotation which sets forth my theory in part, the writer says, "Now, I wish to know whether any company of bee-keepers would receive, without question, such speculations." Well, I hope not. I should be very sorry to have any thing of the sort received simply on my *ipse dixit*. Not even religious teaching is to be thus received. The ancient Bereans are praised as "more noble than those of Thessalonica," because they did not give an unquestioning assent, even to Paul's preaching, but "searched the scriptures daily whether these things were so." This is the proper attitude of mind in regard to the entire circle of human knowledge. When any thing is received as apicultural truth, because Cook or Heddon or Doolittle, or GLEANINGS or Clarke says it is so, we come to the mental slavery which leads people to believe because the priest or minister says so. Away with all this hu-

miliation of mind! I want nothing of mine received unless it commends itself to the reason as having the stamp of truth upon it.

Friend Savage asks, "Is the latter end indeed the 'business end' of the bee?" That is no speculation of mine. It is a common remark about the bee, that the sting end is the business end of that insect. I did not invent this phrase, claim no patent on it, and suppose it will continue to be in vogue even if my theory about the use of the sting as a trowel be shown to be a mistake. Properly speaking, both ends of the bee are business ends, and so also is the middle a place of business. The bee is constructed for business all over.

Perhaps I have too readily assumed that it is the formic acid which imparts to honey its keeping quality. Certainly I have regarded that as one of the fixed facts in apiculture. The honey stored by the stingless bees in Central and South America has no formic acid in it, and will not keep. Friend Savage writes as if the formic acid were a foreign and poisonous element in honey. Is that so? Is not its total absence, or its presence in too small quantity, a source of trouble with honey that is extracted before being partially or wholly sealed over? If normal honey must have some infusion of this acid in it, then surely we are not warranted in assuming that it is injected only when bees are angered. Admitting this, we must believe that they inject what is required "amid the sweet satisfaction and exceeding joy" with which they pursue their "unmolested avocations" within the hive. I have not said a word calculated to "create a fresh terror and panic" in the public mind as to the adulteration of honey with a poison. There is a trace of prussic acid in some fruits, in all stone fruits, if I am not mistaken; but I don't see any thing in this to create "terror and panic." Nature has a wonderful alchemy, and uses, in minute quantities, elements that, in larger supply, are known to be poisonous. Honey is not "evermore unsafe" because "poisoned by the bees themselves at the fountain head." It is not poisoned by the minute portion of formic acid given for the purpose of flavoring and preserving it, any more than all the tinctures of the druggist are poisoned by the alcohol put with them to preserve them. Exaggerated truth is one form of falsehood.

I do not propose at present to go into any proof of my theory. All I have said is, that my observations and reflections have led to the formation of an opinion which I have given to the bee-keeping public for what it is worth—much, little, or nothing. I am not a microscopist—the more's the pity; but I have seen many drawings of the bee-sting, and quite understand that it is as Ernest describes it, with a single exception. It is a "fine-pointed instrument like a cambric needle," in shape only, but very unlike it in texture, being remarkably flexible and elastic, quite capable of being twisted and curved to and fro. Used along with the *tarsi*, two soft fine hairy brushes, one on either side of the sting, I do not see any mechanical objection to its being utilized in the way I have suggested. Neither does Ernest, apparently, or he would point it out. But as to the offices of the sting in curing the honey or capping the cells, he has nothing to say, either pro or con. Perhaps he will, after further investigation. I hope he will, and others also. I do not know why tongue and mandibles may not aid the sting and *tarsi* in the offices referred

to, giving a joint co-operative action of both business ends of the bee. And if friend Savage can extract any more fun out of my speculations, it is all right; only I think he should back up his supposition with something based on observation and reflection in regard to the habits of the bee.

WM. F. CLARKE.

Guelph, Ont., Can., Jan. 7, 1887.

ELLISON'S VISIT TO THE S. C. STATE FAIR.

THE POISON OF BEE-STINGS, ETC.

I HAVE taken your advice, "Write only when you have something to write about." Well, I have been to our State Fair; and, more than that, I have been an exhibitor. At first it looked like a big undertaking to me. I have been a "honey-man" and queen-breeder for ten years, and this is the first that I have been able to get away from home at this season of the year, my health not permitting. I can assure you it was pleasant to meet so many birds of the same feather as flocked together there. Many whom I had well known from their writings and theories, I had a very nice time exchanging opinions with, as to the different modus operandi of getting the most honey, the best bees, etc. Of course, we have not as yet such an extensive premium list as you have in the North. There were only five premiums given by the agricultural society. I got three; viz., for best comb honey, best extracted honey, and best Italian queen. The latter I value most, as I boast of raising the best kind of Italian queens. I had your Simplicity hive there also, but the premium on hives was given to friend Fooshe, of this State, who exhibited one of the same kind. I had, besides, smokers, veils, wax, and a Novice honey-extractor. I tried the plan of cutting up sections and selling pieces at five cents each, but found it did not pay well. We have but few bee-keepers in our State who use the movable-frame hive, and a great deal of injury is done to the honey-trade by box-hives and their owners.

THE EFFECT A BEE-STING HAS ON SOME SYSTEMS.

A few weeks ago my wife was stung on the foot. In a few moments she was covered from head to feet with a scarlet rash, very much like scarlet fever. She complained of violent pain in the chest, and a dreadful feeling of suffocation. We placed her feet in hot water, and gave her a large dose of bromide of potash; and after an interval of an hour we repeated the dose. She was very ill for two days from the effects of the poison. One of my boys is affected in the same way when he is stung. It would be a great boon if some of our bee-keeping fraternity who belong to the medical profession would study a remedy for cases of this kind, and give it to us. Some say the poison is formic acid. We will say, then, if an acid, use an alkali as an antidote; but how many have used soda, ammonia, etc., for stings to no purpose!

I should very much fear the consequences if either my wife or little boy were stung by more than one bee at the same time.

REVERSIBLE FRAMES AND HIVES.

I have been compelled to think, that, if you can adopt them in the North, your bees do not use so much propolis as ours do. Even with the Simplicity hive, right side up, I find great trouble to lift the

upper story off, on account of its being gummed down so fast.

I am sorry to hear of the bad state your bees are in on account of foul brood. I don't know whether you have tried saving fertile queens in cages with a dozen or more of their own bees placed in the center of a large colony, or not. I make the cages by partitioning off a wide frame, and placing a bit of honey in the comb in each for food. You can then hang it right in the hive, and in summer it is good for two or three weeks. I don't know what you can do with it in your cold winters.

W. J. ELLISON.

Stateburg, Sumter Co., S. C.

I am not so sure that the friends in the North will like reversing any better than you do. It is a matter that is not yet decided.—We have tried caging surplus queens in the hives during cold weather, in the way you describe; but from the severity of the weather here, the queens so caged died in a week or ten days at the most.

BLACKS VERSUS ITALIANS, AGAIN.

MR. FRANCE COMPARES THE LARGE REPORTS OF E. J. BAXTER, AND OF P. H. FELLOWS.

ON page 52, 1887, Mr. E. J. Baxter, of Nauvoo, Ill., claims to have an apiary of Italians that beat the record of my student (Mr. P. H. Fellows, of Brodhead, Wis., whose report for 1886 I find in GLEANINGS, page 74). Well, Mr. Baxter, you obtained more honey, it is true; but you went back to the fourth crop to find it. That is all right. But do you *know* that the Italians did any better than the blacks would have done in the same location, at the same time? According to your own statements, your bees had a great deal better chance than those of Mr. Fellows. First, your bees were very strong, by your help, at the commencement of the honey-harvest. So were Mr. Fellows' bees. So far you are even. But now turn to Mr. F.'s report, page 74, and you will see that his honey was all extracted between May 29th and July 6th—a period of 38 days, while your harvest commenced the middle of June and lasted until the 20th of September—a period of 97 days, or 21 days more than double the time that Mr. F. had. Even then you secured only 80 lbs. more on an average per colony. You did not increase your stock. Mr. F. raised 32 new colonies. You had 63 surplus-boxes with frames full of empty combs—about a set and a half of empty combs for each colony. Mr. F. had none. You used full sheets of foundation, while Mr. F. used only half-inch strips—just enough for a guide. Lastly Mr. Fellows had the long-to-be-remembered drought of 1886 to contend with, while you have gone back to a more fruitful season. Now, I don't see where you can claim any superiority for the Italians, in comparing those two records. I believe the blacks would have done just as well under the same circumstances. It simply proves my statement, that the location and the man have more to do with success than the race of bees.

But it is my candid opinion, that a half breed between the Italians and the blacks is better than either race pure. They may do a little more stinging, but I can handle any of them.

E. FRANCE.

Platteville, Wis., Jan. 24, 1887.

BLACKS AND ITALIANS.

ALSO SOMETHING ABOUT THE DESTRUCTION OF
EXTRA QUEEN-CELLS.

I NOTICE in GLEANINGS that quite a number are talking about the black and hybrid bees being superior to the Italians as honey-gatherers. This may be so in some localities, but not in mine, of which fact I was convinced last season. I keep in my apiary two colonies of pure black bees, and had a very good opportunity of testing them as honey-gatherers beside my Italians.

About June 20, 1886, the white clover failed, on account of the drought. Now for the result: The Italians switched off on to red clover, and worked from morning till night, while the blacks were trying to rob. For some reason, the window to the honey-room was left open, and the bees swarmed in by the hundred. I closed the window to keep out those that were out, and darkened the room all but this window. In a few minutes the bees in the room were all on the window, perhaps two hundred in all, and not one had a band. Now, friend R., why should so many black bees come into this room, and no Italians, if the blacks were as good honey-gatherers as the Italians?

Does the newly hatched queen tear down the unhatched cells? Yes, the young or first queen hatched will bite a hole in the unhatched queen-cells, and bite and pull the doomed queen to death. This I saw last season, with my own eyes. L. J. TRIPP.

Kalamazoo, Mich., Jan. 17, 1887.

Friend T., the question of blacks and Italians has been discussed over and over for perhaps twenty years past, and I think there is no question but that the rule is as you give it. There are also occasional exceptions, owing, perhaps, to peculiar circumstances; and of late we have been gathering up these exceptions, and it is quite likely that hybrids many times produce more honey than either race pure, especially *comb* honey. It has also been abundantly proven, that the young queen herself bites a hole in the side of the unhatched queen-cell. As to whether she pulls the unhatched queen out, or whether the workers do it, is not so well settled. The workers some times assist in tearing the cell down, for I have seen them do it.

UNITING BEES, AND ALL ABOUT IT.

WHEN, WHY, AND HOW IT SHOULD BE DONE.

NOTHING is simpler, if the process is properly understood. I am perpetually surprised at the cumbersome methods practiced by some old bee-keepers. If done properly, I see no occasion to cage the queen if she belongs to either one of the colonies united. I have never lost one yet that I wanted to keep. If each colony has a queen, either one of which you are willing to sacrifice, pay no attention to them. One will die, the other survive. If there is only one, naught will hurt her: she is as safe as any queen in the bosom of her own family. You will generally find this to be the case, even though the bees may do some fighting; always, in case they do not. As a rule, bees can be united in safety any time when other bees are not

flying. The only case in which I have known the rule to fail is during a dearth of honey in hot weather, when I find they will sometimes fight considerably. There are cool cloudy days in spring and fall, any time during which the uniting can be done. Generally, however, it is necessary to do the work early in the morning or in the evening. Evening is the best time. Bees manipulate better then than in the morning, and they are more apt to stay in their new quarters. Unite contiguous colonies if convenient, but you may unite one with another anywhere in the apiary if you have reason to do so.

Some time in the day, remove about half the frames from the two hives. Then in the evening set a hive near where you want the colony to stand, and put into it a frame alternately from each hive. This mixing-up is the very best way to make the astonished and mystified little things form the acquaintance of their new home and each other. If you do not in any case want to use all the frames in the two hives, shake the bees from the extra ones on a sheet or wide board in front of the hive, fixed so that they can crawl readily into it. If the two colonies are very far apart, set your empty hive near one of them and simply carry the frames from the more distant one to it. If the work is done in the evening, very few (often, I think, none) will ever return to the old stand. Those that do will distribute themselves among surrounding hives, in case you remove the old hive. To load the hive of bees on to a wheelbarrow, and take a run to the stand of the colony with which you want to unite, in order to get the bees stirred up, as directed by Mr. Doolittle, may be a good expedient; but it is a harder way than mine, and by no means necessary.

WHEN AND WHY.

The when and the why are interdependent. The reasons for uniting are not always the same in all seasons. There is, however, one ever-present reason to one who runs for honey chiefly; viz., to prevent undue increase of stocks.

UNITING IN THE SPRING.

I do not favor that plan very much. If you want to diminish the number of your stocks at that time, it will do. In case one's capital and stock of fixtures are limited it is sometimes well to do this. It is seldom profitable, I think, to unite weak colonies in early spring, except in case of queenlessness. Pack them up warm and dry on three to five frames; set the hive in the sun, and half a dozen of them are as apt to pull through as that one would if they were all united into one. Inmates of weak colonies are generally weak from dysentery, or are in some way unhealthy. Uniting them stirs them up and causes them to move out and go to work. Their puny energies are unable to stand the drain upon them, and the bees die off much more rapidly than if left in quiet, and they dwindle down to another weak colony before the honey-harvest commences.

UNITING IN SUMMER.

Mr. Doolittle practices uniting weak colonies at the beginning of the honey-flow. I think I know a "kink" worth six of that for most localities, if not for his. I hive the first swarm that issues on the old stand, and set the old hive off. In the evening of that or some early day I carry the frames of brood and adhering bees to one or more of my weak colonies, and in a few days they are ready for work. Where they will swarm all through the honey season, this is much the best plan.

UNITING IN THE FALL.

To a bee-keeper who winters out of doors, one of the best safeguards is to have every colony well packed with bees. I usually reduce my stock one-fourth to one-third. There is another reason for this. Brood combs are ever accumulating out of proportion to our desired increase of stock, while we are still wanting many pounds of *fdn.* every year. Hence we must cull out and render into wax all imperfect combs. Drone combs, crooked combs, combs filled with pollen, etc., all are condemned to the wax-extractor. Look over your stock late in September or in October; and all such frames, containing brood, put behind a division-board until the brood is hatched. If you want to unite any stock with another, insert those frames behind the division-board of that other colony. The latter may be thus strengthened at different times, while the two that are drawn from may be united at convenience. I often divide one colony between two others by means of frames. Or I sometimes shake the bees off in front of a colony containing its full or nearly full complement of comb, and give most of the frames to another. Of course, these processes may be modified to suit the wishes of the apiarist. I neglected to observe in the proper place what will occur to every one, that uniting in the fall helps us to weed out inferior queens. Autumn is the best time to do this culling, as a rule. GEO. F. ROBBINS.
Mechanicsburg, Ill.

BROERS' REPORT.

DOES THE COLOR OF HIVES MAKE ANY DIFFERENCE WITH THE BEES?

FRIEND ROOT:—As the honey season is past, and I have had time to figure up results, I will proceed to send in my report. I started in the season of 1886 with 24 colonies of Italians and hybrids in fair condition; increased by natural swarming to 39. I sold and doubled the rest of them back to 24, and fed to keep from starving. One colony deserted in May. I took in all a grand total of 240 lbs. of honey, about one-half comb. I got six swarms in September from the 11th to the 24th, making in all 29 colonies in the fall, in good condition. I sold 5 colonies in the fall, which leaves me 24 to begin another season with.

ARE BEES COLOR-BLIND?

I will give you an item right here which goes to show that bees are not color-blind. I gave my brother a colony of bees; and as he had a hive of his own I just took the frames and bees from my hive and placed them in his. Jan. 12 we moved them over to his place, about 150 yards distant; and as the weather remained too cold for bees to fly, for about a week after moving, of course they could not come back; and to prevent trouble I had moved their old hive about 15 feet away, and cleaned off their old stand so they would not return to it. When the weather did turn warm, a great many of the bees returned; and on going out next morning I was surprised to find about 50 bees that had found the old hive, although it was placed among a pile of other hives all painted white, except that the hive referred to had the portico trimmed with blue. The poor little fellows had clustered in the portico, and some few had gone inside the hive; and they were as forlorn a looking lot of bees as I ever saw.

ROBBING, HOW TO PREVENT.

A plan that works well with me is to throw a sheet over the colony being robbed; and if the robbers are mostly from one colony, throw a sheet over that also, and just see how quickly they will change their tune. Leave the sheet on the robbed colony until after sundown, and then contract the entrance so it will admit only one or two bees at a time, and they will protect themselves by morning, if they have a good queen. If they have not, unite with some colony that has. M. BROERS.

Gonzales, Tex., Jan. 25, 1887.

REPORTS ENCOURAGING.

WIFE AND I: \$360.35 CASH FOR THREE MONTHS' TIME WITH THE BEES.

WHEN I received GLEANINGS for Dec. 15th you said you would take the liberty of sending it, etc. We are very glad you took that liberty. (By saying *we*, I mean wife and I, for we are partners in the bee-business—and, by the way, I do not believe any man can keep bees successfully without a good wife to help him). Here is our report for 1886:

May 1, 40 swarms; sold 6 (without hives) \$30.00; sold 13 (with hives) for \$65.00; sold honey, 3000 lbs., for \$330.00; total, \$425.00. Our honey is all sold now. Bought 25 Simplicity hives, ready for use, except painting, \$50.00; 3000 sections, 9.75; 9 lbs. *fdn.*, \$4.90—a gain, in one year, of \$360.35.

We have 56 swarms in the cellar now; wintered last winter without any loss whatever. We spent about three months' time altogether; peddled most of the honey, and got cash for it, 10 to 12½ cents. I never saw a section of honey until I produced it four years ago. What success we have had we owe to A. I. Root. We have taken GLEANINGS, and have had his A B C book and no other.

E. R. A. & B. BRAINARD.

Postville, Ia., Dec. 27, 1886.

AN AVERAGE OF 95 LBS. PER COLONY.

Bees are in fine order for winter. This year the average number of pounds of honey per colony was 95; but little is sold up to date.

THOS. H. TRICE.

New Providence, Mont. Co., Tenn.

FROM 35 TO 55, AND 3000 LBS. OF HONEY.

I commenced the season with 35 swarms—20 good ones, 10 poor, 5 very poor. I increased to 55, and made 3000 lbs. of cap honey, very little basswood. Besides this I have more than enough natural stores to winter on.

WM. P. ABEL.

Vienna, Oneida Co., N. Y.

FROM 39 TO 52, AND 1100 LBS. OF HONEY.

The season has been a poor one. Basswood was a failure. I took 1100 lbs. in 1-lb. sections from 39, and increased to 52 by division during goldenrod bloom. Each has from 15 to 20 lbs. for winter. I placed them all in my bee-cellar Nov. 13. The temperature was 50, and they seemed to be very quiet. There was an average shrinkage last winter of 9 lbs. in 42 colonies in the cellar from Nov. 1st to Apr. 15th—165 days. Temperature was about 50.

N. A. BLAKE.

Smith's Mills, Quebec, Can.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz. *Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room.* We have also *Our Homes, Part I. and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' AMATEUR BEE-HIVE FACTORY.

THE bench-vises, which you remember the boys sent for, were duly received. They were now fully equipped to make any thing which youthful geniuses can turn out. After school, during evenings, Mr. Green taught the boys in the rudiments of carpentry. He showed them how, by the use of a try-square, they could make every thing perfectly square. By practical examples, he instructed them as to the mortise and tenon, rabbet, dovetail, and miter. The latter, he said they would often have occasion to use. He then made them a miter-box which he explained as being so useful in a good carpenter shop. The keen zest and enjoyment with which the boys took hold of the work made them apt scholars, and they soon became quite proficient in the use of tools. In the mean time Mr. Green had loaned them a copy of the *A B C of Bee Culture*, and had directed them to read carefully the chapter on *HIVE-MAKING*, which the boys did. Though the instructions there given were designed to accompany the buzz-saw, they thought they could make use of some of the instructions, even for hand-tools.

One evening after school, while the boys were talking and planning in their workshop they discovered that they had insufficient light. Jimmie proposed to Sam that they make a little window just over the work-bench so they could have "lots of light" just where they wanted it. Sam readily agreed, but said he must first ask his father's permission to cut a hole. When the boys presented the matter before Mr. G. the latter readily consented, and at the same time explained how it could be done.

A pane of glass, 10x15, was purchased. An oblong hole was made through the side of the barn, one-quarter inch smaller all around

than the glass. This was ingeniously let into the wood and then held there by strips of wood nailed around the edge of the glass.

Finally Saturday, which was a good while coming to the boys, arrived. They had previously had some experience in making one or two hives, and now they felt confident that they could make a larger number without so much waste in lumber as in the first. Mr. Green had given them a little talk on the division of labor. He explained how it would be economy of labor and time to make several hives at once. Accordingly the boys had decided to make a "batch of six hives." The first thing to be done was to saw the boards up in proper lengths.

When they had been sawing for awhile, Jimmie exclaimed, "By cracky! this is mighty tough work." As he said this the perspiration began to stand out on his nose, and his arm and back began to ache. Straightening up and throwing back his shoulders he said, "This is more work than play—almost as bad as sawing wood."

"You are right," said Sam. "Sawing hives with these little saws is too hard work."

"I'd just like to shake hands with the man who invented the buzz-saw. Say, Sam, don't you s'pose we could get up one?"

"A small mandrel that would answer our purpose would cost only \$2.25, and a couple of small saws could be had for about \$1.50. I don't know how we could get the power."

"Why can't we make a windmill? We've made little ones," said Jimmie.

"So we could!" said Sam, brightening at the idea. "Let us talk with pa about it."

The boys commenced work on their hives again with renewed energy.

That evening the matter was brought before Mr. Green. After some reflection he thought the boys might manage to make a windmill for running a buzz-saw for light work; but then they would need his assistance. It would have to be quite large to run a buzz-saw—considerably larger than the boys had ever made. He advised them to wait until he could talk to a friend who was a machinist.

(Continued.)

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes.
An' faith, he'll prent it."

A LITTLE GIRL WHO "BEAT HER PAPA ALL HOLLOW."

My papa gave me some bees. They have made me 67 lbs. of nice extracted honey, and I traded my honey for a nice bat and a wax doll. Papa says my bees beat his all hollow. MAMIE BROERS.

Gonzales, Texas, Jan. 2, 1887.

Thank you, friend Mamie, for your report. We have known your papa real well, and we are glad to know he has a little girl, even if she did beat him all hollow.

A LITTLE GIRL'S REPORT IN REGARD TO THE BEES GATHERING POLLEN IN TEXAS.

This is the third letter I have given you on the subject. In 1885 they commenced bringing in pol-

len on Sunday, the first of Feb. In 1886 they commenced on Sunday, the 31st day of Jan. In 1887 they commenced on Saturday, the 22d day of Jan. Our earliest bloom is the water-elm tree. It is very white pollen. Bees are all healthy and strong to date. Papa has sixty colonies; not one has died.

LIZZIE L. MULLIN, age 11.

Oakland, Texas, Jan. 24, 1887.

VESTA'S LETTER.

My mother has 20 hives of bees, and she puts them in the cellar in the winter. She had 10 hives last spring, and got about 400 lbs. of honey in two-pound boxes. What the bees don't finish up we extract. My sister and I turn the extractor. Ma sent to Mr. Root for the extractor two years ago. Last week Thursday it rained so hard I could not go to school, and I tacked muslin on to the frames for chaff cushions to put over the bees.

Last summer my Sunday-school teacher gave me a Bible for learning perfectly the ten commandments. When I had them learned we found that my little sister Frances, seven years old, had learned them just by hearing me say them. We are in the same class, so our teacher gave her a Bible too.

Owego, N. Y., Nov. 27, 1886. VESTA PADGETT.

BANKING UP SNOW FOR WINTER PROTECTION.

My brother has had pretty good luck with his bees, as he has not lost one swarm this winter. The way he keeps his bees in winter is this: He puts boards up around the hives so as to keep off the wind, and when it snows he shovels the snow up all around the hives, but leaves the entrance of the hive open, so that they can get air. He says that this warm weather is hard on them, for they go out and try to fly around, and the snow blinds them so they can not see, and they freeze to death. He built a shed for them last winter, and they did not do so well, for he had 36 stands and lost half of them. He likes to work with bees, and he likes the honey also. He has now 52 stands of bees, and he has been talking of buying some more of one of our neighbors, who wants to sell them. He made a great deal of money selling honey last summer, and, besides, he kept enough to use, and he kept enough to use all winter. ROSE CUSTIS.

Gillem, Ills.

I hardly think the bright snow blinds the bees so that they die from the effects of it. Bees flying out on these warm days are liable to become chilled. If they once alight in the snow they scarcely ever rise again. It is the chilling and not the blinding them that plays mischief with our pets.

JUVENILE SWARM-CATCHERS.

My pa has 54 stands of bees in the cellar. We had 32 colonies last spring, and got 1200 lbs. of honey, and increased them to 52. I like to help work with bees. I help to tend them in swarming time. I watch them and catch the queen, and put her in a cage and lay the cage in front of the hive and let her be there until the bees come back; then I let her out of the cage and let her run in the hive. We have our queens all cropped. We have had a cold winter so far. The thermometer was down to 26 below zero on the 7th.

AARON A. KNOLL, age 12.

Salamonia, Ind., Jan. 17, 1887.

Boys and girls make capital swarm-catchers, don't they, friend Aaron? Papa can

not always be on hand when a swarm issues. Instead of running to tell him that the bees are swarming you can tend to them yourself. Little boys and girls, you can all do it if you will only try. I was "awful 'fraid'" when I first tried it; but the offer of a whole dollar made me bold, and I succeeded, as some of our old readers may possibly remember. After that I did not have to be hired to catch swarms when "my pa" was away. That was ten years ago. If you wish to know more about it, see last pages of the A B C of Bee Culture.

OUR FRIEND CHARLIE ASKS SOME MORE QUESTIONS.

We commenced in the spring with 8 colonies—5 in box and 3 in L. hives. I increased to 20 by swarming. The box hives did nearly all the swarming, while the Langstroth hives made the honey. We got only 2 swarms from the frame hives. The box hives made but very little honey. We took 300 lbs. of comb honey. This was a good season for bees. It opened up April 17, with the blooming of golden willow. This, although lasting but a short time, produced lots of honey; and during its blooming, bees filled their brood-chambers. Locust also produced a great deal of honey this year. Basswood yielded lightly on account of rains; but white and sweet clover lasted for several weeks. Red clover produced some honey during its fall bloom. Honey came in so plentifully all summer that we could work with the bees any time in August without any danger of robbing. Drones remained until after the middle of August.

How long can our bees be confined in winter without being troubled with dysentery? Are any of the bees destroyed that are out at work during a heavy rain? Will a little clover chaff mixed with wheat chaff draw dampness? In swarming, will bees always cluster up in a tent that is set over them? What part of the spring is the best time to Italianize? CHARLIE L. GREENFIELD.

Somerville, Butler Co., O., Jan. 3, 1887.

With favorable conditions, friend Charlie, I think the bees may be confined four or five months, without any trouble whatever. Where the stores are not of the best kind, however, it may be quite desirable to give them a fly every three or four weeks. I presume some bees are lost during a heavy rainstorm that comes up suddenly. If the sun comes out shortly afterward, however, I believe they usually dry off and get home.—I do not think that clover chaff would do any harm, and I think we have had reports where bees were wintered nicely with clover chaff and nothing else.—We have never tried controlling swarms by setting a tent over a hive after the bees have started to come out. I presume they would cluster somewhere on the tent.—The sooner we Italianize our bees in spring, the better; but the weather, however, would probably make it uncertain business before the latter part of spring, in our latitude.

BEEES ALL RIGHT SO FAR.

My papa has 120 colonies of bees. He has part of them in the cellar. The thermometer stands about 34 degrees down cellar. The bees seem to have wintered all right so far. They seem to be very quiet. That is a sign they are wintering well. It is not very cold here now. The thermometer is 50

to-day outdoors. Papa's bees are in chaff hives. He packed them with cut straw. Papa hived all of his bees double to keep down the increase, except one swarm which he put in the new Heddon hive last summer. Last year was a poor season. We got but a few hundred pounds of honey.

LUCY HURLBUT, age 11.

Linden, N. Y., Jan. 22, 1887.

A BOY'S REPORT FOR THREE YEARS.

I commenced bee-keeping in 1884. Pa had a man hired to cut brush, and one day I went down where he was at work. He went to take a drink of water, and he saw a swarm of bees in the tree. He gave them to me, and I put them in a cracker-box. I watched them all summer, and that winter Mr. Hall went down to New Orleans to the Exposition, and he bought a 9-frame Langstroth bee-hive. That winter I would look at them about every two weeks. When spring came they were all dead. That was the first lesson I learned.

In the spring of 1885, Mr. Hall and I bought 3 hives of bees, and we took 15 lbs. of honey from one new swarm. I increased to 8 colonies, and in the spring I had 6 colonies of bees. In 1886 I increased 15, lost one; two got away; and I caught one. I took 50 lbs. of honey from one hive which did not swarm. I divided one swarm, and sent and got an untested Italian queen for \$1.00, which did well. I have now 14 colonies of bees. This evening Mr. Hall found a colony of bees in the hedge. He said there was about half a bushel of comb, and the bees are dead. Did you ever hear of bees settling in a hedge?

PAUL M. FRANCIS, age 14.

Mulberry, Bates Co., Mo., Dec. 13, 1886.

It doesn't pay to tinker with bees during the winter, does it? Old veterans sometimes manage to do it without killing the bees; but boys and beginners had better let them alone.—Bees frequently do swarm and cluster in hedges, but I never before heard of their being found in such places at this time of the year. No wonder they were dead when they were found; that is, if you are having as cold weather as we in Ohio have been having.

TOBACCO COLUMN.

SHALL GROCERS SELL TOBACCO?

I WISH to say to you, that I have prevailed on my brother-in-law to agree to give up the use of the filthy weed, tobacco; and he says that, if you will send him a smoker, if ever he takes to the use of tobacco again he will pay you double price. He keeps bees. Having just read Terry, in GLEANINGS, on the use of tobacco, I must ask you a question, though I know what your answer will be. I am 61 years old; have never used a bit of it in any shape, except to smoke seed-ticks with it, to get rid of them. Well, I have a little one-horse store, and the country is flooded with stores. All sell tobacco. I have to sell it also, against my will. I have tried to prevail with the young to give up the use of it, telling them I would quit keeping it. The answer is invariably, "We will go to other places and get it, and you will lose our custom." What am I to do? To quit selling tobacco is to quit business.

CHARLES L. GOUGH.

Rock Spring, Mo.

Friend G., we have had just such a case in our own town. A young man owning a grocery became a Christian. He thought it his plain duty to give up the selling of tobacco, although the profits from his sales of the weed were large. Some of his former customers did go to other grocers for their tobacco and provisions; but in spite of this, and in spite of the fact that there are seven other groceries in our village of a little over 1500 inhabitants, his business has prospered, and his grocery store ranks among the two or three of the kind in town that are doing the most business.

HAS CONQUERED THE HABIT.

I promise never to use tobacco any more. If I do I will send you 70 cts. for the smoker. If you see fit to send me the smoker, I shall keep my pledge.

Pawlet, Vt., Dec. 14, 1886. S. H. HARRINGTON.

If my husband uses any more tobacco, I will see that you have the 70 cts. for the smoker.

MRS. S. H. HARRINGTON.

Here is what friend H. says after giving up the use of tobacco:

The smoker is nice, and I am much obliged for it. It was rather hard to go without tobacco at first; but, thank the Lord and you, I have conquered.

Pawlet, Vt., Dec. 28, 1886. S. H. HARRINGTON.

Many thanks for the smoker you sent me; if I ever use tobacco in any way I will pay for the smoker. I received your A B C, and am highly pleased with it.

W. C. SWETNAM.

I am a reader of GLEANINGS. I have been a chewer of tobacco for 40 years. I wish to place myself under bonds to discontinue the practice, for which send me a smoker.

I. A. PRESNELL.

St. Louis, Mo., Dec. 29, 1886.

I gave up the use of tobacco last spring, and haven't used any since. If I am entitled to a smoker, send it along. If I begin again, I will pay for smoker.

FRED ELDRIDGE.

Sharon Spa, N. Y., Jan. 3, 1887.

W. C. Sweasman says he has quit the use of tobacco; and that, if you are willing to send him a smoker, you may do so; and if he ever uses the weed again he will pay you for the smoker, postage and all. Send it to him; and if he breaks over I will see that it is paid for.

A. T. DOYLE.

Berthaville, Mo., Dec. 28, 1886.

TWO GIVE UP THE HABIT.

Here is another party coming, pledging themselves to henceforth abstain from the use of tobacco, if you will send them each a smoker. Should either of us hereafter use it in any way, I will pay twice the price of smoker or smokers.

J. A. AND H. A. KIME.

Fairfield, Pa., Jan. 1, 1887.

INCREASE IN WEIGHT AFTER GIVING UP TOBACCO.

My father is now 74 years of age, and has not used tobacco for 2 years. He had used it for 52 years. His average weight when using tobacco was 150 lbs.; it is now 195. He promises never to use it again, and asks you to send him a smoker. If he ever uses it again he will pay you for the smoker.

JOHN C. PIERCE.

Groton, Vt., Jan. 2, 1887.

OUR HOMES.

When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—PROV. 16: 7.

NOW, I am going to presume in my talk to you to-day, that we have enemies even in our homes. It is a sad thing to contemplate, but facts are often sad. I have particularly in mind the relationship existing between father and mother, and son and daughter; and if there is any relationship in this world that is sacred, it seems to me it is the relationship between parent and child. What does that have to do with the matter of enemies? Well, I suspect if Satan had never obtained a passageway into the human heart there might have been perfect peace and harmony under all circumstances, and for all time, between parent and child. Let me illustrate what I am thinking of, by a little chapter from my own experience.

I am one of seven children. There are three older and three younger. My past recollections of my mother are, that she was a hard-working, burden-bearing mother. Her trust was in the Savior always, but she had many trials and difficulties. In addition to the large family, we were at one time in rather straitened circumstances. Father was a carpenter by trade, and did not always get employment. At other times sickness threw him behind. I remember when affairs got to such a point that things really looked dark for father and mother and a family of seven, and that mother had been praying that God would open a way for father to earn an honest livelihood. The prayer was answered, but the conditions of it were that he should be away from home perhaps more than half of the time. This threw the management of the family upon mother. Now, father was stern and severe. He was of the old Connecticut type, and did not believe in sparing the rod. Every one of the seven, from the baby up, learned to obey, and a good many times they obeyed with fear and trembling. We obeyed mother also, but no child was ever afraid of her. If she punished, her loving hand was restrained by a loving heart from making the punishment any thing very much to be dreaded. When father was at home we obeyed her somewhat through fear of him, if we did not obey with alacrity; but when he was away, some of us fell into loose ways. I myself remember with feelings of sorrow my selfish and disobedient acts and ways; and when my elder brother was away I was the eldest boy in the household, and my services were much needed. But I got lazy and listless about getting up mornings. My mother would call me twice, and sometimes the third time, but I didn't get up then until I got ready. I was also in the companionship of bad boys more or less—boys I shouldn't have been with had my father been at home, and from them I learned examples of disobedience. A neighbor would call one of the children two or three times. The chil-

dren, without making move to obey, would "sass back," as we boys used to term it, in an undertone. The conversation might be something like this:

"Charlie, I have called you three times; now come here *this instant*."

Charlie replies in an undertone, "Well, suppose you did call three times—who cares?"

At this the other boys would titter and laugh, which incited Charlie to further acts of disobedience. By and by Charlie would get whipped for bad behavior. When he came back he would have over something like the following:

"Scolding don't hurt any, whipping don't last long, and kill you they dare not."

Now, friends, I never did as badly as the above; but I might have done so had I had the same kind of training and encouragement in badness. I can not remember positively, but I presume likely my mother used to speak something like this:

"Amos, I have called you three times now, and you really must get up at once."

I do not remember of ever talking back when my mother called me, but I do remember that I grumbled to myself, as I got up in a sullen way, "Well, suppose you have called me three times—who cares? and who wants to be scolded at and found fault with for everlasting?"

Of course, I got up surly. If the dog got in the way before my eyes were well open, I kicked him. If my younger brothers or sisters, who were up and washed, and bright and happy, half an hour before I was, came in the way, I felt angered at them. Perhaps I gave one of my sisters' dolls a kick. After I had been up a while these surly, peevish feelings wore off, and I was a tolerably bright happy boy, and most of the time we were a pleasant, happy family. But I am saddened to be obliged to admit, that sometimes the surliness seemed to be contagious, and got among several of us at once. We pained our tired, patient mother by wrangles and disputes; and when she exhorted us to godliness and loving-kindness to each other, we rejected her Bible and her religion. Now, mind you, we didn't often do this openly to her face, if we ever did. It was a sort of undercurrent; and had we been called to task we would have said, may be, we were "just in fun." Poor mother was sorely tried with many cares as well as fatigue, and it would be nothing strange if she sometimes forgot just a little, and reproached or complained, in a way that was not just the wisest. Dear father and mother, whose eyes are resting on these pages, have you never had any trouble by disobedience among the children? Have you never been tried to see them growing up selfish and indifferent? and have you never felt any discouragement, and felt that talking was of no use? May be you do not say it out loud, but did you ever feel, "I declare, I have talked and talked to that boy John until it seems as if there were not a bit of use in talking any longer. If the boy goes to ruin, he will have to go. I actually believe I have told him twenty times to put his muddy boots out on the porch; to hang up his hat, and to shut the stair door after

him. Just look there, will you? There are the boots on our best carpet; there is the best hat on the floor, and there is the stair door wide open, with such a draft through here that we have probably all caught cold. I have told him of it kindly and patiently; but if he does not say outright that he does not care, his looks say it plainer than words can speak it. What shall I do?"

Now, friends, am I not right in saying that enmity is growing up between this mother and son? Both parties are getting calloused and case-hardened, as it were. The mother has got to the point where she says if the boy goes to ruin, he will have to go—she can't do anything more for him. The boy has been so long disobedient, selfish, and unfeeling, that he can say outright, "Well, who cares if I did? what are you going to do about it?" Now, I don't mean to say that I got to be as bad as that, but I was growing stronger that way, and had got pretty well along. I knew my mother was overworked, but other boys' mothers were overworked also, and we couldn't be tied up to mother's apron-strings, so we laughed it off as a joke, and let it slide. I do not know how common such things are. You can tell, dear friends, better than I whether Satan has made any such inroads into your own loved home. I hardly need tell you that boys, when they get to the stage I have pictured, are ready for strong drink and games of chance. A cigar will come pretty soon, unless something interposes. Perhaps some tired mother or discouraged father feels like saying, "For God's sake, Mr. Root, tell us *what* we are to do when children won't obey us." Dear friends, it is with joy and gratitude to God that I undertake the task of telling you what to do in cases like these. It is with joy and gratitude that I tell you what saved me from—who shall say what?—and placed me here to write these Home Papers for the help and encouragement both of parents and children.

I do not know how old I was at the time—perhaps ten or twelve. A series of revival meetings was held in our town of Mogadore, Summit Co., O. I do not know what church was instrumental in starting the revival, for I did not go; I did not like "meetings." Mother went, I believe, regularly, and I heard something of the outpourings of the Spirit, as some of the brethren and sisters termed it. I did not know much about the meetings, and cared less; but this I did know: That a change had come over my mother. She was always a Christian, but now she was a happier and more hopeful Christian. It shone from her face, it rang out from the tones of her voice, and it overflowed from every act and motion of her life. I believe my mother in her younger days was a rather handsome woman; but as my memory goes back this morning it seems to me she was a beautiful mother under the influence of the outpourings of God's spirit into her heart. Notwithstanding her cares and the hard work that lay before her, she was at this time constantly breaking forth into snatches of those grand old hymns. Occasionally I woke up in the night and heard her voice in prayer. This was nothing new,

but just now the tones were hopeful and joyous. She prayed as if the blessing had already come. She prayed for my poor self, as if she *knew* I was going to be a better boy. We began to get *acquainted*, and it was about this time that she began to teach me and interest me in gardening; then she told me in a way that did not have any severe reproach about it, that father was having a hard time to get along, and that she and I together could help a good deal by having a nice garden. Poor mother! she was already doing more work than any human being ought to do, and yet she planned to help me make garden. Finally she spoke one evening about the trouble of getting me up mornings. She told me that, in father's absence, I was almost the man of the house, and that it would be a great help to her if I could get up in good season, or, at least, the first time she called me. She had struck the right chord, and I was disarmed. When a drunken man or a highwayman gets a revolver in his possession, the first thing to do is to disarm him; get out of his hands that murderous weapon, by hook or by crook; and, my friend, when Satan makes an inroad in your child's heart, the child must be disarmed—not by might nor by power nor by reproaches, nor by telling him that you have called him three or four times already, but by Christ's spirit; by throwing away bowie-knives and revolvers, or, if the expression is too strong, by throwing away reproaches and harsh feelings out of your own heart; you must do it in the language of our text:

When a man's ways please the Lord, he maketh even his enemies to be at peace with him.

I remember the very morning after this when mother called me. I remember the tones of her voice better than the words, but they were something like these:

"Amos!" She spoke just my name, and nothing more, until she had roused me to consciousness, so that I remembered the conversation of the night before. Then she said, in gentle, loving tones, "The sun is shining; you will get up now and help me, will you not?" I don't think I replied back, "Yes, mother, to be sure I will," but the look in my face said it better than words, and I was not only up and dressed quickly, but I was bright and cheerful. Mother had conquered—Satan was cast out, and that, too, in the name of Jesus Christ, just as Peter bade the lame man get up and walk; but mind you I had not accepted Christ at all; there was no thought of Christianity direct in my boyish heart. I got up for my mother. It was Christ's spirit that moved me, but I saw that spirit through her; and, dear parent, if your child is to be led to Christ it must be to Christ through *you*. When he can see Christ embodied in your daily life, then he will accept Christ. You may ask if there is no limit to this. God only knows where the limit is; but we read in his holy word (Lev. 26:8), "Five of you shall chase a hundred, and a hundred of you shall put ten thousand to flight." I can not remember that my mother had any trouble afterward, in getting me up mornings. Neither can I tell you how much we enjoyed the gardening

that summer; nor can I tell you how much father was pleased to go around with mother and to see how much things had grown during his absence. As an illustration of the change that came over her boy, I will mention a little circumstance.

Mother was the only one of the whole family who knew how to milk a cow, and in father's absence she milked the cow winter and summer, and oftentimes when the older ones sat around the stove. One stormy morning, I think it was when snow and sleet came with the rain, she started to milk the cow as usual. I jumped up and took the pail, saying, "Here, mother, you have milked that cow long enough."

She expostulated gently. "Why, Amos, you have not learned how. Let me milk this morning, and when we have more time I will teach you to milk, if you really want to do it."

Now, I had begun to have quite an idea by this time of being a man and being manly, so I took the pail from her with a good-natured smile. I told her that, if I did not know how to milk, I guessed I could learn. I had been taking care of our big red bossy, winter and summer, so that she knew me and I knew her, and there was not very much trouble on that score; but before I got the pail full I concluded it was a bigger job to milk a cow than I had ever supposed. I was ashamed to go back and tell mother, so I stuck to it; and, if I remember correctly, mother never milked the cow any more. I hardly need tell you that the experience of that winter and summer has had its effect on my whole life; nay, further: it has produced a marked effect on the lives of every one of those seven children. My poor father was not blessed with mother's natural helpfulness, but he seemed rather given to doubt and darkness. He once made the remark, that he should have had his name taken from the church records more than once had it not been for his wife. The good pastor to whom the remark was made, replied, "Brother Root, you may thank God for your good wife who has pulled you through so many seasons of darkness; and by his grace we hope she may yet pull you into the gates of the eternal city." And I believe the prediction has been fulfilled.

You may say, "But, Mr. Root, how are we to get that overflowing spirit of trust and faith? Must we go to revival meetings, and go forward, and get up an enthusiasm?"

I do think, my friend, you should make it a point to attend the revival meetings held in your vicinity; but besides this I think it is the duty of every Christian to attend the regular prayer-meetings as well as the preaching services; not only be on hand, but take up the cross and do your part. If you have met discouragements and trials, just such as I have pictured to-day, get up among your brothers and sisters and tell them you want to be nearer to Christ, and ask their prayers; and when you do this, be sure your daily conduct is in keeping; examine your own heart well, and see whether you are fulfilling the commands of the Scriptures. Read your Bibles, and see if they don't touch on the point of your

troubles. I told you about our friend Robert, in jail, a short time ago. Robert says he is a member of the church; he says he wants to be a Christian; but when I read those passages to him about loving our enemies, and doing good to those who hate us, he declared flatly, that, if that was what the Bible taught, he didn't want any of it. When it came right down to the plain teachings of the Bible, he refused to obey, point blank. Now, then, has your child seen you repeatedly love your enemies, and do good to those who hate you? When you get up in the prayer-meeting, and say that you are hungering and thirsting for an outpouring of the Holy Spirit, does every one who hears you say it know that you are complying with the conditions laid down in God's holy word? Another thing, that I know is helpful: Go often to your pastor; tell him your difficulties, and ask him to pray for you and with you. You may object, and say that he is already overburdened, and will not care to know about it. It is a mistake—it will help him in writing his sermons, to know the needs of his flock, and it will help him to talk over these things. You can not be a Christian and keep it all to yourself. No such baptism of the Holy Spirit would have been poured out upon my mother's life had she not been among God's children, and habitually gone around through the neighborhood in scenes of sickness and death.

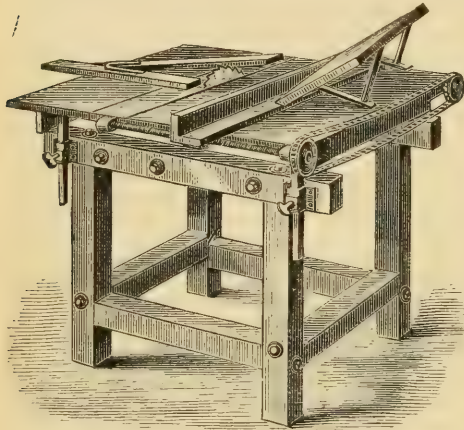
The great point is, to get Satan out of your own heart, and the great danger is that you may be misled to thinking you are doing a Christian duty when you are almost wholly in the bonds of Satan. Beware of how you get into a set and formal way of reproaching the child over and over again. I once heard of a boy who was asked what his name was, and he replied that it was "Willie Dont." He was probably a boy of an inquiring turn of mind, and had heard it over and over so much, "Willie Dont," that he thought it must be his name. Sometimes a parent says, "Why, do you suppose a body can stop his work, and go and take time to have a long palaver with that child over some trifling matter?" My friend, the molding of the mind of the child, and the fashioning of a Christian character, is the most important work God ever gave to any human being to do. If there is any work in this world that is of any more consequence, let us hear what it is. Instead of standing at the foot of the stairs, and calling your child to get up, in hackneyed phrases that have been used over and over again, go patiently clear up stairs, no matter if you are wearied and in a hurry; stand by the child's bedside; wait until he is fully awake, then win good-natured acquiescence before you go down. Win him with Christ's love in your heart. Go up with a prayer and go down with a prayer, and yours shall be the victory over the schemes of the Evil One, and the victory shall be through Christ Jesus. And to him be all power and glory and honor for ever.

When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—Prov. 16: 7.

NEW IMPROVEMENTS IN HIVE-MAKING MACHINERY.

SAW-TABLES, ETC.

AFTER Mr. J. S. Warner, our foreman, had got our new building with its new machinery nicely in running order he set to work to devise some improvements in some of our wood-working machines, to render them safer to the sawyer as well as to make them accomplish more and better work. Below we give you a view of one of the machines which he has devised and improved.

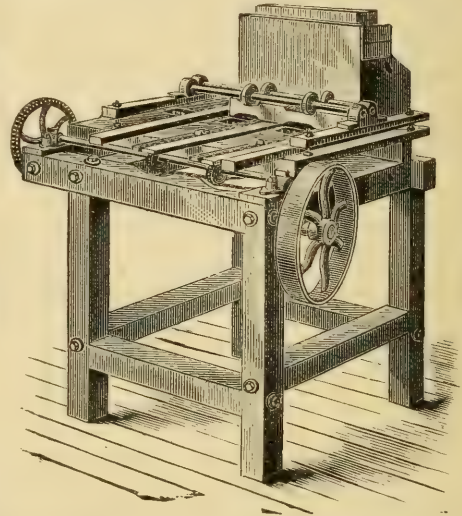


SAW-TABLE, WITH WARNER'S IMPROVEMENT.

This machine is for general-purpose work, such as we propose to send out. The improvement consists in having the distance from the ripping-gauge to the saw regulated by an endless chain and screw arrangement. The chain, as shown in the right of the engraving, passes over two toothed wheels, or, technically, spur-wheels. The latter are attached to the end of the two rods having square-cut threads eight to the inch. To each end of the parallel gauge is fastened a nut through which the long screws pass. Now, when this gauge is exactly parallel to the saw, any width required for ripping stuff may be quickly obtained by grasping the chain in the middle and pulling it one way or the other. Both screws will, under necessity, travel at the same rate of speed, as the chain can not slip. In obedience to the screw, both ends of the gauge will travel at the same rate, and the gauge will, in consequence, remain exactly parallel.

This is a great improvement over the old parallel gauge, for the following reasons: It permits of a very fine adjustment, even to the "splitting of a hair." If the stuff ripped is discovered to be a little "scant" or a little "flush," a slight pulling or pushing of the chain will secure the exact width. This could not be easily done by the old plan. Secondly, the gauge is held much more securely, there being no possibility of a shuck. Thirdly, when the required width for ripping is secured, the gauge does not have to be fastened down, the nut-and-screw arrangement holding it perfectly stationary.

Fourthly, should the saw get out of line, as it is apt to do, the set-screw holding one of the spur-wheels to the long screw may be loosened. By a slight turning of the screw, independently of the other, the gauge may be made exactly parallel to the saw. The set-screw, before mentioned, may then be tightened. We can furnish this machine, when desired, at the old price; *i. e.*, \$25.00, including the miter-board shown on top of the machine, and one of our heavy mandrels. Formerly we have sent out one of the small mandrels in one of these machines. For 50c extra we will put in a mandrel that will take 9 groovers.



WARNER'S AUTOMATIC MACHINE FOR CUTTING INSETS IN THE SECTIONS.

The next to which we invite your attention is an automatic machine for cutting the insets to the bolts, or pieces of planks, prior to being ripped up into strips. The bolts are simply piled in the tray shown in the rear of the machine. They are then automatically shoved through and thrown upon the floor in the foreground. This is done by a pair of endless chains with now and then a raised link so as to catch the blocks. The pile of blocks then drops down, and the bottom one is shoved out as before. The chain, together with a pair of raised links, is shown in the front of the machine. The device for holding the blocks firmly over the cutter-head as the blocks pass over is a series of four wheels mounted on two one-inch shafts. They are shown in the cut together with a pair of cutter-heads.

This machine will accomplish in three or four hours what would require a whole day by the old way of shoving blocks over a cutter-head by hand, cutting out but one inset at a time. Not only that, but it is operated with entire safety to the one feeding it.

Right here it is proper to remark, that this machine was the outgrowth of an accident to one of our old trusty men while cutting out the insets in the old way. A little knot was the cause, it having caught in the cutter-head, revolving at a high rate of speed.

The bolt was thrown suddenly out from under his hand, allowing it to fall upon the cruel knives. To prevent a repetition of such a thing we told our foreman, Mr. Warner, and our machinists, that we wanted them to get up an automatic machine which would preclude the possibility of an accident, and the foregoing is the machine.

We can furnish this machine, when desired, put up complete, for \$75.00.

P. S.—By way of caution, we wish to suggest to all of you who have to do with saws or cutter-heads, be careful; saws are treacherous things, rather more partial to the inexperienced. You will not appreciate the importance of being careful until you have mutilated your fingers. Several of our men have been hurt recently, and we speak whereof we know.

ERNEST.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,

EDITOR AND PUBLISHER.

MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 15, 1887.

Shall not the Judge of all the earth do right?—GEN. 18: 25.

CONTRIBUTIONS FOR GLEANINGS.

I BELIEVE there has never been a time before when so many good articles were waiting for a place. As the winter is now about past, let us drop long essays, and get into practical work. Bright practical thoughts, expressed in few words, seem to be the demand now in journalism.

A BEE OR A COW—WHICH?

We clip the following from the *Rural Canadian*:

None but those who have studied the subject have any idea of the enormous waste of honey that goes on from want of properly qualified insects to collect it. Here, for instance, is a striking fact:—Given two fields of clover of equal size, side by side, one of which you pasture with cows and the other of which you pasture with bees, the one pastured by bees will produce a greater weight of honey than the field pastured by cows will of butter and cheese, and the cows will have eaten every blade of clover that is in the field."

The above statement may be true, but it seems a little astounding.

TERRY AND TOBACCO.

We are pleased to notice that the N. Y. *Tribune* of Feb. 9 has copied the greater portion of friend Terry's article from GLEANINGS, and also strongly indorses the position taken by your humble servant and others. May God be praised, that a paper having the moral weight of the *Tribune* has thrown its influence against tobacco.

THE POTATO-BOOK—AN APPENDIX.

By my request, friend Terry has written quite a lengthy appendix, giving all that is valuable that has come up since the book was written, two years ago. This appendix will be furnished free of charge to all who have purchased the book, by application on a postal card, and it will be included with the book to all future customers. We will furnish the 3 little hand-books—viz., Terry on the Potato, Terry

on the Winter Care of Horses and Cattle, and Prof. Cook's new book on maple-sugar making, for an even dollar, postpaid.

MR. THOMAS HORN.

As we go to press, Feb. 16, we have received letters from about fifty individuals who have sent Mr. Horn money. The greater part of the fifty have received no returns whatever. A few have had a part of the order filled. The amount claimed foots up to something like \$375. Mr. Horn fears it will be impossible for him to settle all claims *this season*. It was an error of my own in so stating it in our editorial last month. As the notes he proposes giving are payable in two years, he expects to take them all up before they are due.

A HONEY-APIARY.

As soon as the weather shall permit, we propose to locate a honey-apiary a few miles from the home apiary, for the purpose of more carefully testing some of the new appliances for producing comb and extracted honey. The large number of colonies in our own locality during past seasons has made it almost impossible to test some of the new systems of honey-production with any degree of satisfaction—the nectar of our locality being divided among five or six hundred colonies. None of our stocks have been able to secure more than enough to fill the brood-chamber, to say nothing about going above. Should foul brood reappear in the home apiary again this season, since the prices have been reduced it may be necessary to establish still another out-apiary. In any event our friends may rest assured that all who send for queens and bees will receive nothing but perfectly healthy stock.

OUR AGRICULTURAL PERIODICALS, AND DO THEY PAY?

OUR esteemed friend "Sam," in the *Ohio Farmer* for Feb. 12, makes the following point, which was gathered during the institute work during the past winter in Wisconsin: There is one township in that State where not an agricultural paper is taken, and the average price of butter for the year was 10½ cents. In another township, 214 agricultural papers are taken, costing about \$250, and their butter sold at an average of 23½ cts., the same year. As the amount sold in each township was not greatly different, it shows that, by paying \$250 for intelligence, they received for it the dividend of \$8100 over the township that takes no papers. In other words, the farmers who saved \$2.50 by not taking farm papers actually paid \$8100 by being too smart to take such papers. Besides the matter of butter, how much benefit did the others receive in other crops? And besides the crops, regarded from a dollars-and-cents view, what has been the effect of those 214 periodicals on the boys and girls? Still further, our agricultural press, as a whole, is striking heavy blows for righteousness and godliness (excepting a few of them on the tobacco question, but it is only a very few). The time is mostly gone by when it was fashionable to sneer at "book farming." I hope the agricultural press will pass this item around; and if it shall happen to fit townships in other States as well as Wisconsin, let us have it widely copied.

CONVENTION NOTICES.

The Pan-Handle Bee-Keepers' Association will hold its next meeting at Wheeling, W. Va., No. 1138 Main St., in K. of P. Hall, March 3 and 4, 1887.
W. L. KINSEY, Sec.

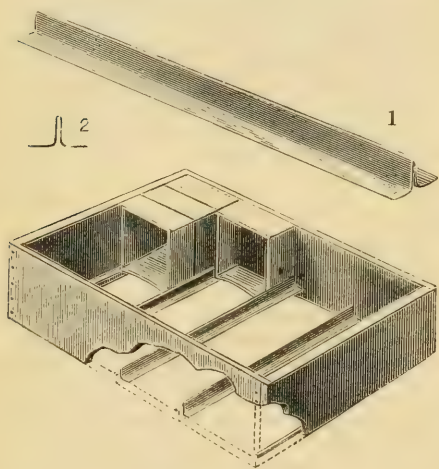
OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE T SUPER—ITS USES AND CONSTRUCTION.

FEVER since the first appearance of that practical little work by Dr. Miller, "A Year Among the Bees," we* have been discussing here in our establishment the merits and demerits, if any, of the T super. We have made several models upon a plan different from Miller's; but after carefully considering all the pros and cons of the various plans we have at last gone back to very nearly the original one as described in the doctor's book. The slight change was made with a view to simplify the construction of the T super as well as to secure one or two additional advantages, as it seemed to us.

The one figured below does not represent exactly the one which we propose to bring before the public, as we made a little change in it after we put it into the hands of the engravers. However, it will serve our purpose to illustrate the principle of the T super.



THE T SUPER.

The T tins, from which the super derives its name, is shown in Figs. 1 and 2, the latter a cross-section. Friend Miller, in his book, says it would be desirable if the T tins could be made of one strip of tin, but that his tinner informed him that, with ordinary tools, this could not be done. His tins were accordingly made by placing two tins, bent at right angles, together, as in Fig. 3. They were then soldered. These are just as good when finished, but are rather expensive to make. We now have a machine which makes the T tins of one strip of tin, as seen in Figs. 1 and 2.

We next were undecided as to whether we should make these T tins at fixed distances,

or whether we should make them movable, as in the Miller super. The engraving shows the tins as stationary. We had then decided to make them as in the cut, for the following reasons: First, the tins would always be in place, and, as a consequence, would not require to be spaced when putting in sections. Second, the T tins would not get lost.

After carefully reconsidering the matter we came to the conclusion that we ought not to deviate to any considerable extent from the plan given by so good an authority as Dr. Miller. We accordingly decided to make the super with the T tins movable, in spite of the fact that our engravers had illustrated the super as originally intended. The manner of construction which we have finally decided upon is as follows:

The two end-pieces of the shell of the super are $13\frac{1}{2} \times 4\frac{1}{2} \times \frac{1}{2}$; the two side-pieces are $18\frac{1}{2} \times 4\frac{1}{2} \times 5-16$. We next get out two strips of tin, $\frac{1}{2}$ inch wide, and in length equal to the inside length of the super; also

two strips of tin $\frac{1}{2}$ inch wide, in length equal to the inside width of the super. These strips of tin are bent at right angles along

their entire length. These are nailed along the inside bottom edge of the super, as in Fig. 4. A represents a section of the wooden side near the bottom edge, and B, C, the tin bent at right angles. Upon B rests the flat edge of the T tin, the edge C coming flush with the bottom of the wood.

ADVANTAGES IN HAVING THE SUPER MADE AS ABOVE.

Let us now consider one or two of the necessary advantages accruing from the use of movable T tins. They permit, first, not only the use of the $4\frac{1}{2} \times 4\frac{1}{2}$ section, but also the 6 to the L. frame, and the 4 to the L. frame. Where it is desirable to use either of the two latter, one or two of the T tins, as the case may be, may be dispensed with, and the others spaced so as to receive the sections. That is, this super will take a 1-lb., 1½-lb., and 2-lb., section, and, as we shall see, several widths of these sizes. Right here the reader will observe that the Moore crate, by reason of the partitions being at fixed distances, does not permit of the foregoing valuable function. Again, the T super, with movable tins, permits the removal of the sections *en masse*, by means of a follower, in the easiest manner possible. It is true, the Moore crate possesses this feature to a certain extent, but it does not seem to me that the sections can be removed as easily. Those partitions present a considerable amount of surface to the sections; and this, together with the added amount of bee-glue, makes a consequent increase of friction in removing the sections.

There is another very important advantage which the T super has over the Moore crate; namely, the former may be used either with or without separators, while the latter can not be so used. Last of all, the T super costs less.

The foregoing are the differences between the two surplus arrangements. In other respects they possess about the same func-

*"We" means Mr. Warner (our foreman), Mr. Calvert, A. I. R., when he is not off in the lots, and your humble servant. We're the "bosses," you know.

FIG. 3.

tions. One is, that they will take other widths than the 1 15-16—an advantage which can not be said of the combined shipping and honey crate. By the application of a little arithmetic we find that the T super and the Moore crate will take the following-named widths: 1 15-16, 1 11-16, 1½, and 1¾ scant, and the number of these required to fill a crate is, respectively, 28, 32, 36, and 40. These sizes are figured without the use of separators; but our foreman says that all of the above will shrink after leaving the saw, to permit the use of separators if desired. The sizes above do not include the 7-to-the-foot section, but the latter may be made to fit the super by piecing it out with another width of section.

The T super and Moore crate can both be tiered up; but the combined shipping and honey crate is not so constructed as to admit of this feature *inside the Simplicity hive*.

We can furnish the T super, made as described above, in the flat, including T tins and the L. tins, for 15c each; 10 for \$1.10, and 100 for \$10.00. T tins when desired separately will be 12c for 10, or \$1.00 per 100. If desired by mail, double above prices. L. tins, separately, 50c per 100.

SPECIAL NOTICES.

SOME IMPORTANT CHANGES IN THE 60TH EDITION OF OUR PRICE LIST NOW IN THE PRESS.

PRICES REDUCED.

YUCCA BRUSHES, TINNED WIRE AND SIMP. FEEDERS.

The wholesale prices on all these have been greatly reduced.

BEES BY THE POUND, NUCLEI, AND COLONIES.

We have reduced the prices of bees to where they were five or six years ago. Bees, \$1.00 per lb. in July, or 75c for ½ lb. Colonies, \$8.00 in July.

WIDE FRAMES.

Wide frames for 8, 6, or 4 1-lb. sections, will be \$2.00 per 100, or \$15.00 per 1000; 3 or 4 box cases, for the Doolittle surplus arrangement, \$1.50 per 100, or \$12.00 per 1000.

ALSIKE.

We have reduced the price of alsike to \$7.00 per bushel; \$3.60 per half-bushel; \$1.90 per peck; 15c per lb. Our seed is all clean and fresh, having been grown in 1886.

LAWN-MOWERS.

We sold so many of these last season, that, notwithstanding the advance in all iron goods, the manufacturers have given us better prices, and we reduce the price to you 50c on each machine. Prices will be, 10 in., \$5.00; 12 in., \$5.50; and 14 in., \$6.00.

COMB FOUNDATION.

We have made some new mills to run by steam-power, and are turning out better *fin* than ever before. We now offer four grades: Heavy brood, from 4 to 6 ft. per lb.; light brood, 7 or 8 ft. per lb.; thin, about 10 or 11 ft. per lb., and extra thin flat-bottom, about 13 or 14 ft. to the pound. Send for samples, and a new price list with revised prices.

BROOD FRAMES.

The price of our regular all-wood dovetailed brood-frames, including comb-guides, is reduced to \$1.20 per 100. The same, pierced for wire, without the comb-guides, same price; wire and tin bars included, 40c per 100 extra. Metal-cornered frames, \$1.00 per 100 more than all-wood. Frames with reversing devices and metal corners, \$2.30 per 100 more than all-wood; without the metal corners, 80c less.

PRICES ADVANCED.

It always gives us more pleasure to reduce prices than to advance them; but we are sometimes compelled to advance to get cost.

SCREWS, BESSEMER STEEL.

The price of wood-screws has advanced so much that we are compelled to withdraw prices in counter list, and advanced prices appear in next edition of price list.

WIRE NAILS.

We have revised the wholesale rate of wire nails, making a slight advance; but the retail price remains the same, except ¾ inch, which will be 18c per lb. instead of 17.

HONEY-TUMBLERS.

The manufacturers of glass honey-tumblers have advanced their price to us because of the general advance in glass goods; and as we sold these very close we are compelled to advance also.

GLASS.

Glass has been hard to get for some time, and prices have been advancing; and from the present outlook they are liable to advance still more. We hope it may not last long, and we have not marked up the prices of glass in our price list yet; but if there is any more advance we shall have to charge more than our list price; and if we do you will have this notice in advance.

SMITH'S FORCE-PUMP, OR SPRINKLER.

We have for some time been selling these pumps at wholesale lower than the manufacturer himself, though we did not know it, and it has caused him no little trouble in the way of complaints from his customers. He came to see us a few days ago, and we agreed to make our prices the same as his and other wholesale dealers'. This necessitates some advance in prices, and we hereby cancel all quotations and printed prices, and substitute the following:

Price of one pump, \$1.00; 2 for \$1.90, or 3 for \$2.75. A crate of 12 for \$9.00; a crate of 24 for \$16.00; a crate of 50 for \$30.00, or 100 for \$55.00.

Now, to compensate for this advance the pump has been greatly improved. The plunger is made differently, and these improvements make the pump cost more; hence the advance in price. There will be no deviation from these prices, except the cash discounts quoted from time to time. When ordered with other goods they will be shipped from here, and thus you will save freight by ordering of us.

ADDITIONS AND IMPROVEMENTS.

We have made quite a few additions and improvements which appear in the 60th edition of our price list, first among which is our

ONE-STORY CHAFF HIVES.

We have added to the price list a cut of this hive, with table of prices.

T SUPERS.

These are to be used to tier up inside the Simp. or chaff hive. They are illustrated and described elsewhere in this issue.

SAW-TABLE FOR HIVE-MAKING.

This is illustrated and described elsewhere in this issue. The table of prices of hives in the flat has been revised, and a new table of

HIVES IN FLAT, INCLUDING INSIDE FURNITURE.

Has been added. This we hope will be a help to many in making their orders, and in seeing at a glance the cost of different hives *complete* in the flat, without figuring it all out from different parts of the list.

Many other changes have been made too numerous to mention here, and that you may be posted you had better drop us a postal for a new list and samples of our comb foundation.

GOSPEL HYMNS.

We are now able to furnish Gospel Hymns consolidated, in paper covers, without music, for only 5 cts., and the little book contains all of the Gospel Hymns that have ever been published in numbers 1, 2, 3, 4. Sent by mail for 6 cts. These are especially intended for revival meetings, and will probably prove to be a great convenience. We can furnish 10 copies for 48 cts., or 100 copies for \$4.00.

We will give 20c for May, 1875, GLEANINGS, not 1885.

OUR catalogue of seeds for the greenhouse, garden, and farm is now ready, but it will be mailed only on application. It also contains prices of all kinds of vegetable plants—cabbage, cauliflower, tomato, pepper, kohlrabi, etc.

PROF. COOK'S BOOK ON MAPLE-SUGAR MAKING.

The book is now out, and is being mailed every day. If you have only a couple of dozen trees, I think it will enable you to save enough to pay the cost of the book. Price of the book, 35 cts.; postpaid, 38 cts.

GALVANIZED WIRE CLOTH FOR SEPARATORS.

We have just had an offer from the manufacturers, which enables us to furnish wire cloth, four meshes to the inch, No. 22 wire, for 5½ cts. per square foot. Where wanted in quantities less than a roll, the price will be 6 cts. per square foot; but at this price you must take it in pieces clear across the roll—that is, 3 feet wide. If cut to order, for separators, we shall have to make an extra charge for cutting, and whatever waste remains belongs to the purchaser. This wire cloth is the same size recommended by friend Betsinger, as nearly as I can recollect. You will notice, by a little figuring, that it costs considerably more than tin or wood. As to how much better it is than either tin or wood, experiment will have to determine.

WATERBURY WATCHES.

THE last series of Waterbury watches, which have been on the market nearly a year, are giving such surprisingly good satisfaction that it seems to me hardly right to omit mention of it. Every watch we send out is tested by the heads of the establishment; viz., I carry two every day, and John and Ernest each carries one. I rather think those I carry have the most severe test; for the young man who gives them to me, and takes them away again, sometimes has to chase out of doors after me to get them. Well, day after day the watches, when taken from my pocket, after having been carried 24 hours, are found to be right on the dot. One day one of the workmen found one in the mud where I dropped it, in jumping across the creek. Even that did not harm it.

A NEW EDITION OF GARDENING FOR PROFIT.

WHILE the above embodies all that the old book contained, it also includes every thing that Mr. Henderson has written for the agricultural papers since the old edition was out, besides bringing in all the improvements in the way of varieties in cultivation up to the present date. It also contains the latest discoveries and improvements in the matter of greenhouses; and it seems to me it is a book that any one interested in these industries can not well get along without. Peter Henderson is now one of the leading minds in market gardening in the world. It was my good fortune to have a visit with him a few days ago; and, although he is 63 years of age, he is as full of enthusiasm in every thing pertaining to vegetable and plant growth as he ever was in his life. Another thing that greatly pleased me was to see him so earnestly devoted, heart and soul, toward this problem of interesting the youth of the present age in honest, legitimate outdoor industries. The new book is so much enlarged, the price has been advanced to \$2.00, postpaid by mail. We can send it to you by express or freight, with other goods, for \$1.85.

PROFITS IN POULTRY.

THIS is the title of a new book, just received from the O. Judd Co., New York. As usual with their publications, it is well printed (250 pages) and profusely illustrated. As one mind can not well cover the whole range of experience and knowledge of an industry, O. Judd Co. have selected several of the best poultry-writers in the country to write the book, each writer upon his special branch of the industry, so that we have the cream of the various departments of the subject. Its whole tenor seems to discourage going too heavily into poultry at first. Its motto seems to be, "Economy all through." It tells how to make a coop for a small amount of money, just such a one as the average farmer feels he can afford. In its discussion of poultry-diseases it recommends only simple treatment—no expensive doses or tonics

which can be purchased of Mr. So and So. In short, the instructions all through are very simple, aided by different cuts. For instance, after one has read the chapter on "Caponizing," he is made to feel that he is already master of the art, so clear is the description. The book seems to be especially well adapted to the farmer and others who have no desire to spend their money in fancy blood, fancy coops, etc., but who wish to make poultry on a small scale pay. We have decided to put it in our book-list. Price by mail, \$1.00. If sent with other goods, by freight or express, 90 cts.

CIRCULARS RECEIVED.

The following price lists have been received at this office:

- An advertising sheet from Ezra Baer, Dixon, Ills.
- A 14-page circular of bee-supplies from Chas. H. Smith, Pittsfield, Mass.
- A 32-page circular of apianian supplies from E. T. Lewis & Co., Toledo, O.
- An 8-page circular of supplies in general from F. M. Atwood, Rileyville, Ill.
- A 4-page list of bee-keepers' supplies from E. C. Long, Williamsville, N. Y.
- A leaflet—"Facts About Honey," from Samuel Cushman, Pawtucket, R. I.
- A 12-page list of bee-supplies from J. W. Bittenbender, Knoxville, Iowa.
- An 8-page list of bees, queens, and poultry, from Jno. A. Thornton, Lima, Ill.
- A 4-page sheet of bees, potatoes, etc., from Ernst S. Hildebrand, Ashippun, Wis.
- A 12-page list of bees, queens, and supplies, from Jas. M. Hyne, Stewartsville, Ind.
- An 8-page circular of bee-keepers' supplies, from A. D. D. Wood, River Junction, Mich.
- An advertising sheet of quibby smokers and bee-hives, from W. E. Clark, Oriskany, N. Y.
- An 8-page (large size) circular of bee-keepers' supplies and poultry, from C. M. Dixon, Parrish, Ill.
- A 32-page list of fruit-boxes, bee-supplies, etc., from The Berlin Fruit-Box Co., Berlin Heights, O.
- An 8-page price list (large size), of poultry and bee-keepers' supplies from A. H. Duff, Creighton, O.
- A 14-page list of bees and queens, garden seeds, small fruits, etc., from Christian Weckesser, Marshallville, Ohio.
- An 18-page list of bee-supplies. Specialty: the Richardson hive and fixtures, from M. Richardson & Son, Port Colborne, Ont.
- A 4-page circular of supplies from J. H. Martin, Hartford, N. Y. Among the special features of this we notice his chromo cards.
- An advertising sheet—specialty, the Eaton section-case, from Frank A. Eaton, Bluffton, O. He also sends a 4-page circular of bees, queens, and poultry.
- A 32-page list of bee-supplies from E. Kretschmer, Coburg, Iowa. The circular also contains considerable information upon hives made invertible, sectional, etc.
- A 36-page catalogue of bees, hives, fixtures, and general supplies, from Edward R. Newcomb, Pleasant Valley, N. Y. The appearance of this tastily gotten-up catalogue is neat and novel.
- A 32-page list of supplies—specialty, bee-hives and crates, from G. B. Lewis & Co., Watertown, Wis. They put out this season new and desirable styles of hives, such as the present season will demand.
- A 12-page list (large size) of apianian supplies—specialty, chaff and Simplicity hives, from A. F. Stauffer, Sterling, Ills. We notice in the above, that Mrs. A. F. Stauffer advertises eggs from that much-prized breed, Plymouth Rocks.
- A 32-page circular of apianian supplies, Bee-keeper's Guide and Memorandum, from Jos. Nysewander, Des Moines, Iowa. Mr. N. was one of our former stenographers and clerks in the office of the Home of the Honey-Bees. We are glad to note his evident success.
- A large-size 50-page circular of every thing pertaining to the apiary, from Abbott Bros., Southall, London, England. These gentlemen are probably the largest apianian-supply dealers in England. They illustrate numerous styles of hives, quite varied in design—crates, honey-bottles, etc.

The following were printed at this office:

- A leaflet of apianian supplies for L. Purdy, Killbuck, Ohio.
- An 18-page circular of general bee-supplies, bees, queens, etc., for John Nebel & Son, High Hill, Mo.
- A 12-page list of apianian implements, comprising quite a complete list, for M. H. Hunt, Bell Branch, Mich.
- An 8-page list of supplies—specialty, Foster's Adjustable honey-case and hives for Oliver Foster, Mt. Vernon, Ia.
- An 8-page circular of bee-keepers' supplies for E. C. Kepner, Dunlap, Tenn. Mr. K. proposes to take students in apiculture. Write him for terms.

ESTABLISHED 1855. BEESWAX HEADQUARTERS.

We have constantly on hand a large stock of Domestic and Imported Beeswax in original shape, which we offer to manufacturers of Comb Foundation at lowest prices. We guarantee all our beeswax absolutely pure. Write to us for prices. Address
R. ECKERMANN & WILL,
Beeswax Bleachers & Refiners, 4-12db SYRACUSE, N. Y.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey*.—Honey still drags; the demand is very light; and to effect sales we have to shade prices.

White-clover, 1-lb. sections, 11@12
Wild-flower, 1-lb. section, 10@10½
Broken comb, 7@9
Extracted, white-clover, tin cans, 5@5½
White-sage and wild-flower, cans, 4@5
White, in bbls., Southern, 3@4¼
Beeswax, choice yellow, 25; medium lots, 22@23;
dark, 20, W. B. WESTCOTT & Co.,
Feb. 21, 1887. 108 and 110 Market St.

BOSTON.—*Honey*.—No change in prices, and demand is for one-pound sections of fancy white honey.

Feb. 21, 1887. 57 Chatham St., Boston, Mass.

CHICAGO.—*Honey*.—Sales small and not frequent. Commission houses are being urged to sell out consignments sent them some time ago; and as these are offered at buyers' figures, the market may be called weak. Extracted, very little being sold.

Beeswax, 25, R. A. BURNETT,
Feb. 24, 1887. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey*.—Very few sales reported, with large supply on hand, and prices some lower. Best white, 11@12c. *Beeswax*, 23c.

Feb. 21, 1887. M. H. HUNT,
Bell Branch, Mich.

CINCINNATI.—*Honey*.—We quote extracted honey at 4@7c on arrival. Choice comb honey, at 12@15c in a jobbing way. Demand slow.

Beeswax.—There is a good demand for this, which brings 20@23c on arrival for good to choice yellow.

Feb. 23, 1887. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

KANSAS CITY.—*Honey*.—There is no change to report since our last to you.

Feb. 21, 1887. CLEMONS, CLOON & Co.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

CLEVELAND.—*Honey*.—There is no material change in honey. Demand continues very light with values unchanged. Best white in 1-lb. sections sell, at 13c; 2-lbs., 11@12. Dark 1-lb., 10c. Extracted, 6c.

Beeswax, 25c, A. C. KENDEL,
Feb. 19, 1887. 115 Ontario St., Cleveland, O.

MILWAUKEE.—*Honey*.—The demand for honey is very fair, and supply ample. We will quote white 1-lb. sections, 11@12; white 2-lb. sections, 10@11; Dark not wanted. Extracted white, in bbls., and kegs, 6@6½; in small quantities, 6½@7¼. Dark, in bbls. and casks, 3@5. *Beeswax*, nominal, 25c.

Feb. 23, 1887. A. V. BISHOP,
142 W. Water Street.

PHILADELPHIA.—*Honey*.—Honey continues dull at the decline noted. White-clover, fancy 1-lb. glass sections, 10c; same, fair to good in glass sections, and 2-lb. fair to fancy, 7@9.

Buckwheat, 6@8c, as to condition.
Strained, 5@6.
Beeswax sells on arrival. Choice white, 27@28; choice yellow, 23@24; dark, 20@22.

Feb. 14, 1887. PANCOAST & GRIFFITHS,
242 South Front St., Philadelphia, Pa.

COLUMBUS.—*Honey*.—No material change in market. White-clover in 1-lb. sections, 15@16c. Extracted, 10@12½. California honey, slow sale at 8@10c.

Beeswax, fair demand, selected yellow, 22@25c; dark, 18@20.

Feb. 21, 1887. EARLE CLICKINGER,
117 S. 4th St., Columbus, Ohio.

FOR SALE.—600 lbs. of very nice light-colored buckwheat honey, in kegs of 160 lbs. each, 5c per lb.

CHAS. T. GEROLD,
East Smithfield, Bradford Co., Pa.

FOR SALE.—I have about 300 lbs. of fall honey and honey-dew mixed, which I will sell to the highest bidder.

F. W. STEVENS,
Moore's Hill, Dearborn Co., Ind.

FOR SALE.—Six 48-gallon bbls. of choice white-clover honey at 6c per lb., and eight 10-gallon kegs at 6½c; 4 bbls. fine Spanish needle at 5c, and three 25-gallon kegs of fine mixed honey (Spanish needle and heart's-ease) at 5½c per lb. here on board of cars. Send 2-cent stamp for each sample.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

QUEENS. 1887. BEES. QUEENS.

MY ITALIAN BEES AND QUEENS can not be excelled in **BEAUTY** and **WORKING QUALITIES**. I make a specialty of **Rearing FINE BEES AND QUEENS**. Prices **Reduced for 1887**. Be sure to send for my NEW Catalogue before buying. Address
56d FRANK A. EATON, Bluffton, O.

"ENGLISH YOU KNOW."

How the genuine Bingham bee-smoker is looked upon in England, where we have no patents, and any one can make or use or sell just such smokers as he pleases or thinks best. The editor of the weekly *British Bee Journal*, Thos. W. Cowan, after using five full columns and nine good cuts in illustrating the Bingham bee-smoker (space and cuts that would have cost us more than one hundred dollars), says, "A real Bingham will send a greater volume of smoke, and that to a greater distance, than any other smoker we know. We have had such a smoker in use since 1878; and although we have been obliged to renew the barrel, which became worn through from constant use, nothing has been done to the bellows, which is just as good as it was on the first day we had it. A smoker like this will burn almost any sort of fuel that will produce smoke when smouldering. We use old rags, brown paper, or sacking; but peat, decayed wood, or even ordinary firewood, will do when it is well kindled."

For the lowest and the highest priced smokers sold in the United States, and the genuine Bingham & Hetherington uncapping-knives, send card for circulars to **Bingham & Hetherington**,
5tfdb Abronia, Mich.

PLANTS. Send a postal card and get my prices of all of the leading varieties of **STRAWBERRIES, BLACKBERRIES, CURRANTS, and GRAPES**. Prices very low. All stock warranted.

5d **EZRA G. SMITH**,
Manchester, Ont. Co., N. Y.

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.
—SEND FOR MY NEW PRICE LIST.

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.
4tfdb

ARTHUR TODD, 1910 BERMANTOWN AVE.
PHILADELPHIA, PA.

Dadant Brood Foundation, 40c; for wiring, 45c; thin surplus, 50c. Extra thin, 60c. **BEES, QUEENS, SECTIONS, SUPPLIES GENERALLY.** 5d

FOR SALE AT \$1.00 EACH,
20 or 25 good Italian queens bred from a pure select tested mother, 1 and 2 years old. They were mated with black drones. Ready at any time.

H. C. DUTY,
5tfdb Walnut Hill, La Fayette Co., Ark.

A. J. KING'S New Bee-Hive

Takes either Eclectic or Simplicity frames, the 1-lb. sections, etc., and is cheaper and better than any he has before brought out. He sells all supplies cheaper than ever, and guarantees satisfaction **EVERY TIME**. You will save money by writing him for particulars. 5tfdb 51 Barclay St., N. Y.



Vol. XV.

MARCH 1, 1887.

No. 5.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 15 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

DEVELOPMENT OF YOUNG BEES.

SOMETHING FURTHER FROM FRIEND DOOLITTLE.

LATELY I saw the statement that "bees seem to possess the power to retard the development of both eggs and larvae, as also to hasten this process," which may be true or it may not be true. That the development of young bees is greatly retarded at times and accelerated at others, no close observer will deny; but the question in doubt is, whether the bees have the power of thus hastening or retarding the development, or is it a condition or state of things over which they have no control? I believe, as has been lately given in *GLEANINGS*, that the egg is changed into larva only as it is touched by the pabulum from the nurse-bees, and thus far consider that the bees have perfect control over the hatching of the eggs; but further than this I think that the time of year, temperature, etc., have more to do with the matter than the bees. Extreme heat will so hasten development that I have known perfect young bees to hatch in less than 19 days, while very cool weather so retards development that several cases of worker-bees being in the cell for 24 days have come under my notice. In this connection I wish to give some experiments which rather go against my own conclusions, and favor the statement at the commencement of this article; yet as this retarding of development, which is to be spoken of, happened only at the closing of the season, I am not sure that such as comes in mid season is produced in the same way.

For two springs past I have experimented to find out the true temperature required for brood-rearing, by placing a self-registering thermometer inside the cluster of brood and bees. It is no hard

matter to get the highest temperature ever reached in a hive; but to get the lowest is quite another thing. As the outside air is always colder than that in the hive, unless in rare instances, all there is to be done to get the highest degree of heat is simply to place the thermometer in the hive, leaving it there as long as you wish when it is taken out, and the degree noted.

Before going further I will here state that 98° is the warmest I have ever found it to be in the hive in our hottest summer weather, when the mercury was but a very few degrees colder in the shade outside. How the bees can so keep down the temperature of the hive by ventilation is more than I can see; for a hive with no bees in it becomes so hot that animal life can not exist, as I once found by confining a hen for a few hours in a box about the size of a hive, which sat on the ground in the hot sun; for when I went to get her she was dead and nearly roasted. Do we know that the bees do so keep down the temperature by ventilation? May they not have some other means of doing it? But, to return: To get the lowest degree ever fallen to, we have to place the thermometer in a very warm place, so as to make it go up to 110° or over, when the steel registering-bar on the cold side is drawn down to this degree. If we now start for the hive with it, the cool outside air will cause the mercury to sink, so that our object is thwarted; and after a little thought I overcame this trouble in this way: I heated a piece of iron to 140°, and placed it in a box. A cloth was laid on the iron, and another over this, when the box was closed for a few minutes, so as to warm the cloth. The thermometer was now slipped between the cloth, and carried to the hive so that no cooling-off of any amount occurred, while the frames were being put in place to receive

it. In this way I was able to get the lowest point reached during cool nights, on some of which there was nearly a frost. This proved to be at the lowest 92° in all colonies having four frames and upward of brood. In a small colony having brood in only three combs I found 90° registered after a very cool night. From this we see that there is only 8° variation inside the brood-nest during the height of brood-rearing, if my tests are any criterion to go by. During all of these tests so far mentioned, the bees were as active as we usually find them in June and July, so that the activity of the bees may have much to do with this matter.

Now for the last experiment, which was made the last of September. For several years I had noticed that queen-cells in a queen-nursery, used on the Alley plan, would not hatch regularly after Sept. 1, the time varying from the usual 16 days to 24, and sometimes more, while later they would not hatch at all, and I found much the same conditions existing with frames of worker brood. A single experiment gave a temperature at this time of year of only 81° as that now maintained inside the brood-nest. At this time all that activity manifested early in the season was gone, and the bees were sluggish and idle, which might account for the whole matter, were it not that brood-rearing is retarded during the season of activity. Reader, here is a subject for study and experiment; and this somewhat disconnected article is written with the hope that such an interest may be taken in this imperfectly understood matter that we may soon know all about this interesting part of our pursuit.

Borodino, N. Y.

G. M. DOOLITTLE.

Thanks for the facts furnished, friend D. Although temperature is a very necessary item in the matter, I am inclined to think, from the experiments I have tried, that it is by no means the *most* important element. In trying to get a small cluster of bees to rear brood, I failed entirely, even when I had the temperature exactly where you place it. The activity that comes, say when fruit-trees are in bloom, is, I am very sure, an important element. I think I can see how the bees may lower the temperature; in fact, I knew of this before, for I have seen bees right in the blazing sun, where the entrance was large enough, keep the interior of the hive comparatively cool; and my opinion at the time was, that it was done by the evaporation of the thin, newly gathered honey. Converting any liquid into vapor carries off the heat very rapidly, and advantage is taken of this fact in ice-machines, to be seen at our expositions. No doubt the bees knew all about it long before it was discovered by human beings.

A MORAL QUESTION.

ONE THAT COMES FROM A YOUNG SUPPLY-DEALER.

MR. ROOT:—I wish to ask your opinion about a little matter concerning sections. My trade in them is not very extensive. On account of the very low rate at which I can get poplar here, and with my facilities for making them in the winter time, I am sure I can furnish them, freight paid to any point in the Eastern and Middle States, at a lower price than

they are now offered. My inquiry is this: Would it be right for me to lay my plans to do so next winter, as being the "greatest good to the greatest number" (of bee-keepers), or should I join with my brother-manufacturers in not injuring their trade, which they may have worked hard to get?

I admit, this may be a rather funny question, but I am young in the ways of the world, and perhaps Dr. C. C. Miller might want another act of "special legislation" on the ground of "priority of trade."

H. P. LANGDON.

East Constable, N. Y., Feb. 18, 1887.

Friend L., I am exceedingly glad to have you ask such a question before going ahead. I do not mean that I am able to answer it, for I am not—I can simply suggest. If you can furnish sections as you say, and your motive is a right and proper one, I do not know why you should not sell them at whatever price you can honestly afford to. You should remember, however, that we are having failures in business almost constantly, because some one new to the work undertakes to sell things lower than he can afford; that is, he fails to take into account the necessary expenses incident to doing almost any kind of business. I hardly believe, however, that I would agree to pay freight to all parts of the country. Some manufacturers advertise that they will allow a rebate of from 25 to 50 cts. per 100 lbs., in order to equalize freights. It seems to me the safer way for you would be, however, to advertise at a moderate price; then after you have done business a while, and have carefully kept account of expenses, come down a little if you can do so safely. I think it is very neighborly and kind to talk over the matter with other supply-dealers or manufacturers of sections, and avoid ruinous competition as much as may be. I would also avoid getting into so-called "rings," to keep up prices, especially where they are managed so as to keep prices above what they ought to be. The greatest good to the greatest number of bee-keepers is a very safe rule, I think, always remembering to be just and fair in all your transactions.

IMPROVEMENTS IN BUCKWHEAT.

HENDERSON'S NEW JAPANESE BUCKWHEAT.

AS buckwheat is one of the few honey-plants that can be raised by bee-keepers with a great probability of paying expenses on the grain alone, without any mention of the honey, we are ready for any improvements that may be made in the grain; and even should the improvement be just a slight one, it will amount to quite a sum in the aggregate, for we can just as well plant the best as to plant the poorest. When it comes to the matter of seeds, even if the first expense should be four or five times the price of the common variety, we can in one year, or, at the most, two, have the improved seed as cheaply as the poorest. Over we give you a cut of a new buckwheat illustrated in Peter Henderson's catalogue. We shall test it at once, and shall be glad to have it tried extensively by bee-men.

As we know nothing whatever of the plant except what Henderson says, we copy his description from his catalogue.

As far as we know, and so far as careful inquiry goes among men likely to be posted on such subjects, this *Japanese Buckwheat* is not only entirely distinct from all other varieties, but has never before been seen in this country, except in the limited area that we will shortly refer to. A thimbleful of this buckwheat was sent by a Japanese gentleman to a friend residing in New Jersey in 1883. The most of the product of that thimbleful met with a calamity, but enough was saved to enable

tie over it, as, sown on the same day with the silver-hull, it ripened a week sooner, and yielded almost as much again. To show what a yielder it is, we may mention that *one grain* was planted in a garden, and from that was obtained *850 ripe kernels*. This variety can be planted as far north as New Hampshire.

I had a small quantity of the New Japanese Buckwheat from you last year, which I planted on 5th day of July, 1886, and from this I cut, and had, in good clean buckwheat, 1392 pounds, which ripened earlier, and has produced more than three times the yield of the silver-hull with the same culture.

MIDVALE, N. J., Nov. 12, 1886.

DAVID BEAM.



THE NEW JAPANESE BUCKWHEAT.

the grower to sow in 1885 half a bushel, and the result of that sowing was *forty bushels* of good seed. A glance at our illustration will show that the kernels are at least *twice* the size of those of any other variety, and of a shape peculiar and distinct from all others. The color of the kernels is also most distinct, being a rich dark shade of brown. The grower of this buckwheat finds that the straw is heavier; that it branches more, and does not need to be sown as thickly as the other kinds. The flower made from it is equal in quality to that of any other buckwheat, and, as the yields show, is enormously productive. The party from whom we bought the stock, distributed in 1886 ten bushels among farmers in his neighborhood, and, on the 1st of October, he wrote to us that all are enthusias-

The New Japanese Buckwheat ripened about one week sooner than the old-fashioned kind, and produced more than as much again to the same amount of sowing the past season. FOMPTON, N. J., Nov. 16, 1886.

LEMUEL VAN NESS.

We have purchased one bushel, and can furnish it to our readers in five-cent packages, as we do all other seeds. In larger quantities, 10 cts. for $\frac{1}{4}$ lb.; 35 cts. per lb., or \$2.00 per peck. If wanted by mail, add 5 cents for each $\frac{1}{4}$ lb., or 18 cents for a whole pound. If you want further particulars from those who have raised it, write to the parties whose testimonials appear above.

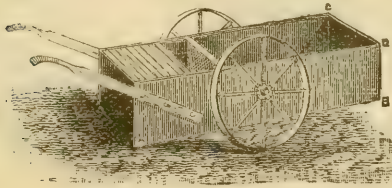
A CART FOR MOVING COMBS ABOUT THE APIARY.

AN INVENTION THAT COMES FROM AWAY DOWN IN CUBA.

FRIEND ROOT:—I send you a diagram of our comb-cart. The cart is designed for carrying combs to and from the honey-house while extracting. The box, or body, of the cart, is 41 inches long, inside measure, and of ordinary store combs it will hold just 30. The box is made the right depth for the comb you are using. The top edge of the side board is rabbeted, to receive the projecting end of the top bar of the frame, and a full comb of honey hangs in the cart as nicely as it did in the hive. The wheels are cast iron, 22 inches high, with a tire, or face, $2\frac{3}{4}$ inches. The body of the cart, when the handles are held up, is just 5 inches from the ground. The wheels are fastened to the side of the box by means of a flange; that is, screwed fast to the box by 7 screws. The flange is 7 inches across, and the axle upon which the wheel turns is cast fast to this flange. You will see by this arrangement we can let the box down near the ground, thus doing away with the use of legs on either end, and still have the benefit of a pretty good-sized wheel. The wheels are placed in the middle of the box, so that, when it is loaded, there is little or no weight upon the hands; and the perfect ease with which we handle 30 full combs of honey with this cart would beat the oldest bee-man if he had never tried it. When we start out in the morning we have the cart full of empty combs, and the work of exchanging combs begins—exchanging empty combs for full ones. As fast as we take out a full one, we put in an empty one. We never open a hive more than once. Now, friend Root, this cart is my own get up, and it is not patented; and if you wish to make and use it you are free to do so.

A. W. OSBURN.

Havana, Cuba, W. L.



FRIEND OSBURN'S COMB-CART.

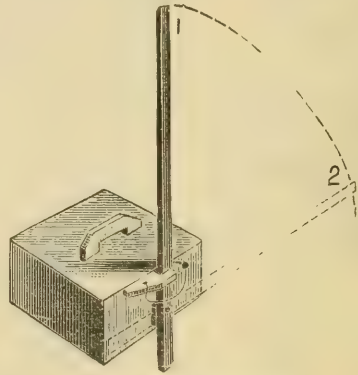
We are very much obliged indeed, friend O., for your very ingenious arrangement. The only trouble that I can see is, that the combs might swing while being wheeled, but I presume not more than they would on an ordinary wheelbarrow. Your idea of getting the shaft out of the way is an ingenious one, but I should think it would necessitate having the boxes made pretty strong; and with boxes so near the ground, it is rather necessary to have the apiary pretty well leveled and graded. I should think the cart might be extremely handy for other purposes, where the ground is even and level—say on the sidewalk, for instance. One could carry a great weight, and not feel it very much. Very light strong wheels are now made of steel, the same as are now used on our new wheelbarrow. Many thanks for your liberal offer.

A BOY'S SWARMING-BOX.

DESCRIBED BY THE BOY HIMSELF.

M. R. ROOT:—As I see swarming-boxes advertised in GLEANINGS, I thought I would send you a sample of my swarming-box. It beats the Kaler box, in my opinion.

There is no standing and holding a box up in the air for the bees to go in; no taking combs out of the box and putting them in the hive. Simply place your hives just where you want them, with your empty comb in the hive. Put your sections on, if you want them on. When the swarm commences to settle, hang the box over them. About nine times out of ten they will cluster in the box. If they are too long going in, take your smoker and smoke them a little on the under side. They will run into the box very quickly; then lift the box off the limb, carry them to your hive, pull out the pin at the top end of the handle, turn the handle to one side, dump the bees in front of the hive, and let them run in, and your work is done.



FELTON'S SWARMING-BOX.

Now, Mr. Root, please just take the little box and hang it on some of your shrubbery, and see how nicely it will hang. The handle will be supported by the limbs, so that it will hang almost anywhere. The little block on the side of the box, under the handle, is to keep from smashing bees. The notched piece on top of the box is for a handle. There is no better method for catching queens from after-swarms that I know of, than to catch them in this box and dump them on a sheet. Set the box back a couple of feet, and catch the queens while they are going to the box again.

My papa says it is the lazy man's swarming-box. When the bees commence to cluster, just hang the box over them, and sit down in the shade till they are in the box, in place of holding the box up in the air.

S. E. FELTON.

Newtown, Forest Co., Pa., Jan. 31, 1887

Very good, my young friend. No doubt your swarming-box will answer as you describe, but will not ours also? May be, however, yours is handier and easier to manage. If you have tried both, I presume very likely you are right about it. I am sorry you did not tell us how old you are. I think the engravers have made a pretty good picture of your device—don't you think so? I will explain to our readers, that a little model was sent in a paper box, with a letter, and the engravers made this cut from the model.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

ONE of our readers sends us the following, clipped from the *Detroit Free Press* of Jan. 28:

The artificial honey now made in New York is so close to the genuine that only the experts can detect the difference. It is in racks, the same as the natural product, and now and then the wings and legs of a few dead bees are to be found to further the deception. It can be sold at a profit for ten cents per pound, and the honey-bee may go.

On receipt of the same I inclosed it to the editor with the following letter:

EDITOR DETROIT FREE PRESS:—

Dear Sir:—Permit me, friends, to call your attention to the fact that you are doing great harm to a large class of people by the publication of items like the inclosed. We, as bee-keepers, have been following this matter up for more than two years, and I think you have been written to in regard to this matter, but perhaps you have forgotten about it. The statement is absolutely false in regard to comb honey, or honey in racks, as your item terms it. It is true, genuine comb honey of second quality has been sold as low as 10 cents per pound, but not one pound of manufactured comb honey has ever been brought forward in answer to the offer made in our journal, of \$1000, over a year ago. You can easily ascertain our responsibility; and to convince you that you are unquestionably mistaken, I will now pay \$1000 to be told where such spurious honey is manufactured. I think I should be safe in offering \$1000 for a single sample, were it not that something might be gotten up for the occasion, to make some sort of a semblance to artificial comb honey. We have been following the matter up for some time, and very many of our periodicals have publicly recalled, or contradicted, the false statements they have innocently made. The statements are greatly damaging the sale of real honey. Believing you are anxious to have truth and not error prevail, I have written you this letter. Will you not kindly return inclosed slip with your reply?

Yours truly, A. I. Root.

A prompt answer came to the above, as follows:

A. I. Root:—Such items get into print without any intention of doing any one an injury. A correction will appear to-morrow, and I will send you a copy of the paper.

C. B. LEWIS.

Detroit, Mich., Feb. 3, 1887.

And in due time the following from the pages of the *Press*:

It was mentioned in this column the other day that "artificial honey now made in New York was so close to the genuine that only experts can detect it." Letters from apiarists in Michigan and Ohio warmly deny the statement, saying the artificial can easily be detected, and that its manufacture and sale is a miserable fraud which should not be tolerated. We did not intend to either advertise or bolster up the fraud. Pure honey is cheap enough so that all can afford it, and the artificial would be dear at any price.

The above is somewhat of an apology for the erroneous statement, it is true; but I confess I felt saddened because we do not see a frank, free acknowledgment that the former notice was an error. Why can't the *Free Press* say there is no such thing made, neither in the city of New York nor in any other city? I am sure that neither

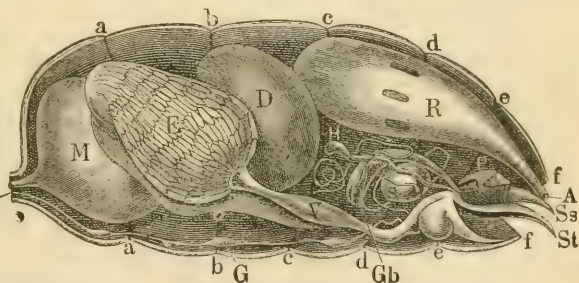
apiarists from Michigan nor Ohio stated that the artificial comb honey could be easily detected, for there is no such stuff, and never was. I have heard it stated from the pulpit, that the way to ruin is broad and easy because it is down hill; and our experience in this line seems to indicate that it is exceedingly easy for newspapers to catch on and push ahead in the line of telling lies; but it is terribly narrow, close, and up hill to tell the bare naked truth, especially when truth demands that the editor of a newspaper should fairly and squarely acknowledge he has been mistaken, or that he has unconsciously done anybody a wrong. May God help us to be bold and fearless in stating the truth when it comes our turn to apologize and retract.

THE TWO METHODS BY WHICH BEES PRODUCE SOUND.

AN INTERESTING ITEM FROM ONE OF OUR GERMAN COTEMPORARIES.

THROUGH the kindness of Mr. C. J. H. Gravenhorst we are enabled to present our readers with the beautiful engraving of the queen's respiratory apparatus as below. The remarks accompanying were taken from the *Illustrierte Bienenzeitung*, of Dec., 1886, of which Mr. Gravenhorst is the editor. The Germans are keen observers and close students; and we doubt not, that, as this question as to how the queen emits sound has recently been discussed, our readers will take pleasure in reading the following translation:

The *Bienenwater* contains a very fine article from the pen of the editor, in regard to the voice of queen-bees, which has greatly interested us. As is well known, the different views in regard to this



RESPIRATORY ORGANS OF QUEEN.

point do not agree one with another. According to Mr. Trell's theory, there is no doubt that bees, especially queens, have not only one voice, but also a second method of producing tones—the first by the movement of the wings, and the other by the respiratory organs. In the first case we speak of the tone given out in flight; in the latter, of a voice. The piping and teeting of the young queen is familiar to every apiarist. The first one is indistinct on account of the inclosing cell. The voice of a fertilized queen, like that of the drone and worker bees, is less noticeable. Bees do not breathe by means of a mouth and lungs, but through openings, or air-holes, called stigmata, of which there are two pairs on the under side of the thorax, and five pairs on the abdomen (see a, b, c, d, e, in the cut). Through these stigmata, the air enters through curiously made tubes, called tracheae, which, in the abdomen, expand into sacks of considerable size. In the midst of this breathing-

apparatus the voice of the bee is produced, similar to the way a tone is produced in whistling. The tracheae constitute the pipes, and the curtain-like film of chitin, which lies around the air-openings, represents the tongue. By means of the expelled air, the film is caused to give forth a tremulous tone. Now, the abdomen of a perfect queen is more strongly developed than is that of drones or workers; hence queens are able to give out a louder and stronger tone, piping and teeting; and even in a virgin state this tone is much stronger than when the body is distended by a full ovary and swollen oviduct, as shown at E and V in the cut. This is the reason why we hear weaker and less frequent tones from fertile queens.

with a disk or Acme harrow, or a two-horse cultivator, and drilling oats both ways, than to plow the ground. I have tried it by plowing every other narrow land, and I get the best meadow every time where the old sod is left down. If you wish to raise seed, you must save the first crop of peavine or alsike.

H. B. HARRINGTON.

Medina, O., Feb. 21, 1887.

OUR P. BENSON LETTER.

BEE-KEEPIN AS A OCKYOUNPASHEN.

HUMBUGS AND SWINDLES

WE notice by the *Western Rural*, that Mr. F. E. Fross, the man who gives away corn, is starting up again. This is what they say:

F. E. Fross.—F. E. Fross, of Ohio, sends to the *Rural* for its advertising rates. Our rates are a million dollars an inch to such people as you, Mr. Fross, and if that should not be high enough to keep you out of our columns, we should raise our rates. We have no use for you, your corn, or your methods.

That is the talk, good friends of the *Rural*, and we hope every paper will follow suit. We are willing to do almost every thing in the world to accommodate square men, but we have not space for a fraud, no matter how much money he has to pay for the space.

NEIGHBOR H. GIVES US A TALK ON CLOVER-SEED.

WHEN AND HOW TO SOW.

AS this is the time of year when every bee-keeper begins to inquire, "What shall I sow or plant for bee pasture?" I will try to give you a few pointers. I recommend clover.

It is the greatest honey-plant of America, and alsike stands at the head. We don't half appreciate it.

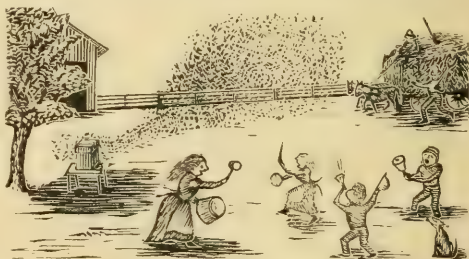
We should sow it everywhere—sow it on the roadside where the teams have cut up the sod, to keep out of the mud; sow it where the pigs have rooted up the sod in the orchard or pasture; give the boy a pocketful when he goes fishing, and tell him to scatter some wherever he sees a piece of bare ground on the creek-bank; put an under-drain in the cat-swamp, and sow some there; burn up all the brush-piles and old stumps, and sow alsike in the ashes. Remember that it makes the best pasture and hay of any plant that grows. Don't forget to mix a little white clover with it. They grow well together, and, at the price it is selling now, it is the cheapest grass-seed in the market.

PEAVINE CLOVER.

This, as a honey-crop, comes the last of July and the fore part of August, just the time when we need it most. It is the great crop to reclaim worn-out or poor land. There is no clay land too poor to raise a good crop of it. With 150 or 200 lbs. of good phosphate or bone-meal per acre, you are very sure of getting a good seed of clover after oats, on the poorest clay soil, and you will get oats enough at 25 cents per bushel to pay for your fertilizer, and get your clover-crop extra. If you have corn-stubble on last year's sod-ground you will get a better clover meadow by cultivating it

IT is no ockyounpashen in life more conducive to employment. Evry 1 in the land shoold keep bees from the 1,000,000 air a goin around with his gold-hedded cane to the tramp which brakes into Pringal's skewl hous evry nite to sleep. If evry man wooman & chiled hed a swarm of bees, what a soarce of happyness it would be. Besides these they ar sum uther classes which it is verry appropre8 to keep bees.

For instants, the farmer. Woarn out, fateeeged, weary and tired with the care and toil and fateeeg of hayin & harvestin, as he cums in all hot and played out, whot a releef it is to hev his mind diverted and his boddie refreshed by the soothin inflewents of hivin a swarm. Also the preacher.



BEE-KEEPIN AS A OCKYOUNPASHEN FOR THE FARMER AN HIS FAMLEY.

Now if ennybuddy in the world ot to keep bees its a preecher. Whot ennoblins thots arises in the expansiv vishens of the mind of l which contemplates the vass abiss of nacher in which floats dreemily backerds & forrerd8 a baskin in the solar light of the sun a 1,000 or may by a 1,000,000 tiny creechers stiled insex a floatin on thair gozzy wings, a dartin & a flyin, now here, now thair, a storin thair hunned sweets in thair waxen sells, which they will store more into l of mi noo hives than enny uther kind or variety. Under sitch inflewents they is a sightlent charm & the thots flows in his hed & brain, and wurd8 of silvery toned eloquents exhails in hunned axents of bammy mildness and limpid sweetness from his mellifloovus tung. * * * *

(Printer poot sum stars or suthin to make a poz logg enuff to talk in the buty of that air last.)

Then if the preecher gits boath ize stung shut, heel be blind to the faults of the peapel & look with a more leanyent i on thair failins, whitich sum peapel has a good menney. If he is stung into i i, when be goze into the poolpit a little girl will snicker, and that will help to keep people awake.

Also the invalid is espeshelly faverrable for the bizness. I think I have saw this stated befour. The invalid wants sum lite bizness & hede ot to keep bees for life. It's a verry lite bizness. The bees will lite all over him.

P. BENSON.

Apicultristical Bee-Keepin Sighentist.

NEW EXPERIMENTS

To Determine the Proportion of Honey Used by Bees in the Production of Wax.

THE PROPORTION OF HONEY CONSUMED TO MAKE A POUND OF WAX IS AN SIX OF THE FORMER TO ONE OF THE LATTER.

AS the discussion of foundation or no foundation, and economy in the production of wax, is now before our readers, our friend Dr. Miller has referred us to an article in one of our foreign exchanges, the *Bulletin d'Apiculture de la Suisse Romande*, written by that shrewd observer G. de Layens. Our proof-reader, W. P. Root, translates it as follows:

In the following experiments I was not altogether occupied with the idea of ascertaining whether bees build combs more or less mechanically with this or that kind of sugar; I simply tried to keep track of the quantity of honey the bees disposed of in working in the apiary, unrestricted, at a time when they chose to do that work.

The experiments made up to the present time differ so much one with another, that all methods are deceptive, and this is why it seemed to be interesting and profitable to recommence them on a different line of procedure.

Two questions, which have often been confounded in practice, and which should be carefully distinguished, present themselves at the outset.

First, when the honey-flow is heavy it is never advantageous to let the bees make wax, even when it costs but little to produce that wax; for, on the one hand, if one gives to the bees a few frames to build out, among a great number already built out, in order that, in building them, they may find sufficient room in the finished combs to store all the honey they gather, they will nearly always build drone combs. On the other hand, if one gives them frames only, to bring them to the condition of swarming, they will then build a large number of worker-cells; but not being able to place in these new frames for storage all the honey they gather, the prosecution of the work in wax will not go hand in hand with the harvest.

We see, then, that at the time of a heavy flow it is always preferable not to allow any work on wax to be done; but when, on the contrary, the flow is feeble, is it more or less advantageous to allow bees to work on wax? That is the sole question I shall try to answer.

The processes of experimenting, which, up to the present time, appear to be the best, are, in short, to choose two colonies, A and B, of equal size, of which the one, A, contains frames to be filled, and the other, B, the finished combs. After a certain time, the honey gathered by B is weighed, then that by A, then the quantity of wax produced; the difference between the weight of honey, compared with that of the wax produced, gives the proportion of the honey to the wax.

This method is subject to various errors.

1. When the queens are of exactly the same fecundity they do not lay, in the same number of days, exactly the same quantity of eggs, because, in one of the hives, there is, after the first day, all the room necessary to lay—room which does not exist in a colony that builds little by little. Then at the end of the experiments there will be more brood in the one than in the other, as the one uses different honey from the other—a difference which has not been taken into consideration.

2. It is generally believed, that if one selects, from an apiary, two colonies of the same strength, and of the same apparent activity, he can, without great error, compare the work of the two colonies; but it is often quite otherwise, as I am about to prove.

Having visited two colonies, Nos. 1 and 2, of which No. 1 was about twice as strong as No. 2, I increased the two colonies to the swarming condition. The bees thus becoming free to gather the crop according to their respective size, as they had no more brood in their hives, I weighed accurately the honey gathered by each of them at the close of a good day for honey. No. 1 had gathered 2 kilograms 140 grams* while No. 2 had gathered 2 k. 630—

*A kilogram may be reckoned as a little more than 2 lbs. 6 oz. A thousand grams make a kilogram.

that is to say, nearly as much, while it should have gathered at least a half less.

This year Mr. Bertrand proved to the contrary these same results. One colony gathered 37 k., while another, of about the same force, gathered, in about the same time, 18 k. The question here is not to explain these facts, but to prove that all experiments which depend upon a simple comparison of the work of two colonies of the same force, can inspire no confidence. Here are the circumstances under which I made my experiments:

1. The colonies worked freely in the apiary in the ordinary way, in order not to change the normal condition of their work.

2. The experiments were made at a time of year when the temperature was high—the highest at least 20 degrees Centigrade (70 Fahr.)—a temperature at which bees show a preference for a free state in order to make wax.

3. I selected, for my experiments, a time when the honey-flow was poor, in order to be sure that those colonies which built, as well as those that did not build, could find sufficient room in the combs to store all the honey they gathered.

4. I selected from the apiary two colonies of bees differing in the number of worker bees and brood, but which seemed, apparently, to work with the same energy. These two colonies, which I will designate by A for the stronger and B the weaker, were the only two which were brought up to the swarming condition.

A received 7 finished combs; then I inserted among these combs some frames for them to fill out. In this way I was sure to compel the bees to finish the combs, and that room should never be lacking for stores in the finished combs, in order that the queen might not be hindered in the least in her laying.

B received eight finished frames, so that the bees could not make wax in the wrong place.

5. I made two experiments in succession, each one lasting exactly eight days. At the end of the eighth day all the frames were taken away from the hives and replaced by others, but in a contrary way; that is, B then built combs, and A was kept from building. This method of increase was very important, for it permitted one, in working with any two colonies whatever, to obtain comparable results, summing up at the end of the experiments all their mutual differences.

6. At the end of these experiments, the honey gathered by A and B was added (these colonies made wax); at last the wax produced by the two colonies was added; but on account of great dampness the honey gathered during the 16 days of experimenting contained much water, so that at the end of the two periods none of the cells were yet sealed. The very thin liquid honey contained more water than sealed honey; and in order to eliminate this source of error I ascertained the density of the sealed honey and that of the honey which had been gathered. Afterward, in adding a sufficient quantity of water to the sealed honey, so as to give it the same density as that which was not sealed, I could easily find the quantity of water which the thin liquid honey contained in excess, which had been gathered, and subtracted this quantity of water from my calculations.

To sum up, the difference of honey gathered by the colonies which built cells, and those which did not build, indicated the weight of honey used to make a certain amount of wax.

7. During the 16 days of experimenting, the queens laid unequally, as they were of unequal fecundity; but it might have been that, during this period, the egg-laying did not go on constantly in the same proportion of inequality. That was, in effect, what took place. In the hives which did not build, the queens laid 16,064 eggs; in the hives which did build, the queens laid 16,634 eggs. This slight difference in brood represents the consumption of honey, of which the weight should be added to that gathered by the colonies which built; but as the eggs did not hatch till the close of three days, and as it was only at this moment that they commenced to use feed, only 358 larvae were fed, whose consumption of honey it is necessary to determine. According to the experiments of Berlepsch, the consumption of honey and pollen should have been 47 grams, to furnish sufficient feed till the 358 larvae should hatch out. According to other experiments which I made on this subject, I found that the bees used, to feed the larvae, nearly as much honey as pollen, of which 25 grams of honey was the maximum

amount used in order that the bees might feed a part of this brood, in which only a part of the cells were hatched.

To sum up: The difference in honey gathered was 1 k. 202 grams.

The wax produced was 191 grams.

The bees used 6.3 grams of honey to produce one gram of wax.

In the preceding experiments, the bees commenced to build combs in eight frames; and as the honey-flow was feeble, except the first day, they could build little else than worker-cells; I say little else, for in the corner of a large finished frame they built some drone-cells. These cells were built the first day, when the honey-flow was strongest (about 2 k. per day).

In practice, it happens that one can make worker comb for the bees economically enough by furnishing them honey at a low price. We find, for instance, that foreign honey in the Havre market can be had for from 50 to 60 francs per 100 k. (or \$9.37½ to \$10.25 per 250 lbs.); but to obtain these results, three conditions are necessary:

1. A light honey-flow.
2. Take away the frames of brood from a colony, and replace them by unfinished combs, inserting them between the full ones. These frames of brood should be given to feeble colonies.
3. Don't let them build, except at a high temperature.

We are exceedingly obliged to our friend across the water, for his suggestion of using two colonies, and then make them change about occasionally. A series of experiments conducted in this way must give us some pretty accurate facts. Perhaps we had better say, in our text-books, that, instead of 20 lbs. of honey to make one pound of wax, from 6 to 8 lbs. is enough. We are the more ready to accept this, as it seems to confirm the result of friend Hasty's experiments, given on page 642, 1886, and also friend Villon's, given at the National Convention at New Orleans.

MAKING BEESWAX.

RENDERING OUT WAX FROM OLD COMBS—FRIEND FRANCE'S METHOD.

I SUPPOSE that every bee-keeper makes more or less wax. If he doesn't, he surely is wasting material which could be made into wax, and so saved. I don't like to see any scraps of wax or bits of comb, or any thing that has beeswax in it, going to waste. Wax is worth money. There is always a cash market for all we can get. We keep at home a box into which we put every thing we have which will make wax—that is, scraps of comb, old discarded combs, or any thing we are going to melt up into wax. We always take with us, when we go to our yards away from home, a box holding nearly a bushel. Into this we put such things as scrapings of honey-boards, broken combs, drone combs, which we cut out, or any bits of comb. These we carry home, to be melted up. It is not then lying around, breeding moths. When it is made into wax there is a cash value in it, and it can be turned into cash at any time, or kept, if we choose to hold it for a higher price.

Now, after having saved up the material out of which to get the wax, how are we going to separate the wax from the refuse matter with which it is mixed, so as not to waste the wax, and at the same time not waste too much time? I suppose the supply-dealers would say, "Buy one of our wax-extractors." Now, it may be that they are the best thing in use for the purpose. I don't know. I never used one. But after I had seen them, and watched

other folks use them, I thought it was too putting a job. I have bought wax which had been worked out with them, and had wax sent me to work up into foundation, which was made with them. But generally there was more or less honey about the wax, and I was obliged to melt the wax in water to get rid of the honey.

Let me tell you how I have rendered out my wax. I have used the same plan, with slight changes, for about forty years; but I will say, that I never was satisfied with the plan. After I had become the owner of from 50 to 100 colonies of bees I took possession of the old rusty clothes-boiler, and purchased the wife a new one in its stead. I placed the old boiler over the fire in the kitchen, put in a large pailful of water, and then filled the boiler with such material as I had on hand, to be melted into wax. I have a good stout stick to stir it up when the water gets hot. The wax will melt and settle down. Put in more comb, and press it down into the water. Continue putting in and stirring, until the boiler is within two inches of being full; then stop putting in, but keep stirring until all is melted. Don't leave the boiler a moment now, for it is likely to boil over on the stove. Keep a dish of cold water within reach; for if it boils it will foam up and run over. If it can not be kept down by stirring, pour in a pint of cold water. As soon as it is all melted, take it off the fire and strain out the wax. For a strainer we have used cheese-cloth; but thin open cotton cloth was the best of any thing we ever tried. It is a yard wide. Take a piece a yard long for a strainer. Now we want a squeezer. Take two pieces of dressed inch lumber, about two feet long by five or six inches wide. Trim off the edges of the boards at one end, so as to make a good handle. Now lay them together, the wide ends one way. Fasten on a good stout leather hinge, to hold the wide ends together; let the leather run up well on the sides of the boards, and tack fast and our squeezer is ready. We next need a pan to strain into, and something into which to throw our rubbish.

We are now ready to strain. We want a dipper capable of holding about a quart or more, and one chair or box, for the one who does the squeezing, to sit on. It takes two persons to do this job—one to squeeze and one to twist the strainer. Now set the chair at one end of the boiler, just a little to one side; set the pan to catch the wax, close by the side of the boiler. Let the one who does the squeezing sit down in the chair. The other person takes the strainer, and stands at the other side of the pan, with two corners of the strainer in one hand and the 3d corner of the strainer in his other hand. The one sitting takes the fourth corner of the strainer in his left hand, and together they hold the strainer open over the pan. The one in the chair takes the dipper in his right hand, and dips out of the boiler into the strainer one or two quarts, then hands his corner of the strainer to the other person and picks up his squeezers, taking them by the two handles. He then opens them out, holding them over the pan. The other person then puts the strainer between the squeezers, and twists up the strainer while the other man, the one in the chair, squeezes. The strainer is turned two or three times, shaken down, squeezed, and twisted until the wax is out, and the rubbish is thrown out. The whole operation is again repeated until all that floats on the water is strained. Both pan and boiler are allowed to stand and cool, when there will be a thin cake of wax on the

water in the boiler, and a good cake of wax in the pan with some water under it. What comes out of the boiler will require melting over, as it is not strained.

Such a batch usually will make from 10 to 20 lbs. of wax; and for those who have but few bees, this plan is a very good one. The objections are, 1. It doesn't get all the wax out clean; 2. It bursts too many strainers, and they cost 5 cts. apiece; 3. It takes two persons too much time to do the straining.

I have studied over this wax business a great deal; for as our bees increased it was taking so much time. Finally, in the spring of 1886 I accidentally made a discovery which, for a large job at least, is very much more satisfactory. We had several sets of combs from which the bees deserted in the spring. After the hard freezing was over, the weather came on hot early, and those combs became wormy before we could use them. There was a large number of them, and the worms had got under such headway that it was not safe to put them in with the bees—not even the Italians. They therefore had to be melted up, and I could not get them through my boiler fast enough. We had a big iron kettle standing out there in the yard, that would hold about four bushels of potatoes to boil for the hogs. I got my eye on that kettle. A thought struck me (so hard that I nearly jumped out of my boots). "There is the wax-extractor that I have been looking for so long, standing there waiting to be used." I had three or four pails of water in it and a fire under it right speedily, and soon had it hot. Those worms quit eating beeswax. It is astonishing how much I could melt down in that kettle. I let the fire go down. So much wax rose on top (as the mass cooled off) that I dipped off, of clean wax, 25 lbs., and strained it at one squeeze. I then dipped out a large milk-pan full which I did not strain. As the wax in the pan cooled it sank in the center. I dipped out of the kettle all the wax I could, and then let it stand two days. At the expiration of that time I took a crust off the top of the kettle, about two inches thick, that took enough wax with it to hold it in chunks. Under the crust the rubbish did not contain a particle of wax. I threw the top crust into a box, cleaned out the kettle, then put back the cakes dipped off before, not strained. Besides these I put in a lot of trimmings from foundation, a nice lot of clean cappings, and some unfinished cakes from my boiler process. I melted them all up together, with three or four pails of water in the kettle. I then strained out two large dish-pans full of clean wax, one squeeze for each pan. I dipped the wax out pretty clean, then put in the rest of the wormy combs. The crust was first taken off the top of the kettle, of the other batch. When I got the second batch hot I dipped off all the wax I could, which was put in the first of the next batch.

With the big kettle we have worked out all our wax the past season. It is a big improvement. Its advantages are, 1. It takes much less time; 2. There is absolutely no waste. I get every particle of wax, and one strainer lasted all summer. Of course, when the bees would work on honey it would not do to work wax out of doors unless we wanted to cook the bees, for hot beeswax has a great attraction for bees, and they would fly into the wax in search of honey.

E. FRANCE.

Platteville, Grant Co., Wis., Feb. 1, 1887.

Friend F., a good deal of time was occupied at the Albany Convention in discussing

this matter of rendering wax, and I believe quite a few decided just as you have done, that a large iron kettle, hung up outdoors, is the very cheapest thing that can be used where the quantity of old combs is large. One of the brothers, whose name I can not now recall, spoke of putting all the combs in a coarse bag, and confining this bag under the water contained in the kettle, by means of a wire cloth. As soon as the whole apparatus gets hot, the principal part of the wax rises through the bag and meshes of wire cloth, to the surface, and may be dipped off. This makes the work automatic, as it were. It is perfectly strained, and is therefore fit for market as fast as it is taken from the surface of the water. When no more wax will arise, get out the bag while it is still hot, and press it with your squeezers, or some arrangement similar to a cheese or cider press. The size of the apparatus would depend on the amount of combs to be worked. You do not speak of the solar wax-extractor, and I presume you have not tried it; but why not, instead of pitching your waste fragments into a box, pitch them directly into the solar wax-extractor, and let old Sol get the wax out at his leisure?

EMPTY FRAMES VS. EMPTY COMBS.

SHALL WE USE OUR SURPLUS EMPTY COMBS, WHEN
HIVING NEW SWARMS, FOR COMB HONEY?

I FEEL quite certain that neither friend West nor friend Doane would wish to give a wrong impression; yet, from a lack of sufficient data, that is what has unintentionally been done upon page 93. In the first place I did not work 55 colonies for comb honey. It is true that I set aside that number in the spring with the intention of running them for comb honey, but, before any sections were filled, five of the colonies were broken up into queen-rearing nuclei; so friend Doane and I began the season with exactly the same number of colonies; *but*, his colonies were *stronger* than mine. His hives were ten-frame hives, while mine held only eight; hence he had in use 100 more combs—enough to have made 12½ more colonies like mine. If my opponents think this view unfair, let me ask if they would have considered it so had I changed my colonies over into ten-frame hives, thus making only 40 colonies of my 50? Right here, however, comes in another point, and that is, that some queens will put no more brood in a ten-frame than in an eight-frame hive (and that is why I use the latter), while many of them will; hence it would probably be unfair to assume that 50 ten-frame colonies are equal to 62½ eight-frame colonies; but I do insist that, in a comparison like this, it is unfair to assume that an eight-frame colony is the equal of a ten-frame one. Perhaps 50 ten-frame colonies would be equal, as honey-gatherers, to 57 eight-frame ones.

In regard to the *amount* of surplus, friend West is nearly correct. I had 300 lbs. more than he gave me credit for; viz., 7000 lbs. As he said nothing in regard to the shape in which the honey was secured, and as I raise comb honey, I presume the readers of GLEANINGS concluded that it was all of that class. Such is not the case; for 200 lbs. of mine was extracted, at the close of the season, from about 1000 unfinished sections, and the rest was in the shape of

finished sections; while, if my memory serves me right, about 1500 lbs. of the 6500 lbs. raised by friend Doane was extracted.

Yes, it is true that I had to feed my bees sugar syrup in the fall, but not so much as I wish I could have done. We had a good flow of honey, late in the fall, from the second crop of red clover, and the bees not only filled the brood-nests so full that but little feeding was needed, but stored considerable in the sections. Upon an average, about 5 lbs. of sugar per colony was fed.

I have no desire, however, to lead my readers to suppose that the non-use of full sheets of fdn. in the brood-nest, when hiving swarms, will lead to such brilliant results as the reading of this article to this point would indicate, as the question of increase is yet to be considered. My 50 colonies increased to 95, while friend Doane's went up to 125.

Let us reduce some of these things to their cash value. We will call empty combs worth 10 cts. each; sugar, $6\frac{1}{4}$ cts.; extracted honey, 6 cts.; comb honey, 12 cts. My comb-honey crop would sell for \$816. From this there should be deducted, for section boxes and fdn., about \$68.00, leaving \$748 for comb honey. To this add \$12.00 for the 200 lbs. of extracted honey, making the net result \$760. From this amount, however, there must be deducted \$29.69 for sugar, which leaves only \$736.31.

Friend Doane's 5000 lbs. of comb honey, at this same price, and with the same deductions for sections and fdn., would be worth \$550; to this add \$90.00 for the 1500 lbs. of extracted honey, making \$640; but from this must be deducted \$75.00 for empty combs used, which leaves, as a net result, \$565.

The question now resolves itself into this: Which is preferable at the end of the season—30 colonies of bees, or \$171.31 worth of honey? And let it not be forgotten, that, as already explained, eight-frame colonies are not ten-frame colonies.

And now, after having given this long explanation, I wish to say that I don't think it contains much proof either for or against the non-use of full sheets of fdn. in the brood-nest when hiving swarms. To be of any value, experiments of this class should be performed in the same apiary, with the same kind of hives, fixtures, and management, and the same strain of bees. I also wish to say, that the profitable production of honey does not depend upon large yields *per colony*, but upon securing it with the least expenditure of capital and labor.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., Feb. 7, 1887.

It is true, friend H., that the report of Mr. Doane gives nothing very definite; but still it indicates, or seems to indicate, the advantage can not be so very great in the disposing of our surplus empty combs. Langstroth called empty combs the sheet-anchor in bee-keeping, and I believe he said they are better than money in the bank; and I confess I have been quite loth to give up this established axiom, as it were, in bee culture.—In regard to eight and ten frame hives, it seems to me that this matter depends much on what month the estimate is made. Very few colonies in our locality need more than eight frames before the middle of April or first of May; and if I were buying bees without regard to the hives that contained them, I would as soon have those in eight-frame hives as ten-

frame hives, say by the first of April. By the first of May I should expect a good deal of pollen; and some brood, perhaps, would be stored in the ninth and tenth combs. A ten-frame hive would be likely to contain more honey by the first of April than an eight-frame hive, and this honey should be worth something. So far as the amount of bees is concerned, however, I don't see that there will be ordinarily much difference. We rarely give any of our colonies more than seven combs to winter on. The space for the extra ones is occupied by the chaff division-boards until toward May.

DOOLITTLE'S QUEEN-CELL PROTECTOR AND INTRODUCING-CAGE.

A NEW AND CHEAP QUEEN-CAGE.

SOME time ago friend Doolittle sent us one of his queen-cell protectors. It was simply a square piece of wire cloth folded in the form of a cone, the sides overlapping. Into this Mr. D. had put a queen-cell from which the queen had hatched. The large end of the cone was stopped with a circular piece of wood. A small piece of tinned wire attached to the end served to suspend the wire-cloth cone containing the queen-cell between the combs. After considering the matter we decided that, with our facilities, there was a much nicer and better way to make the cone-shaped cages: that is, to stamp them out, so here they are.

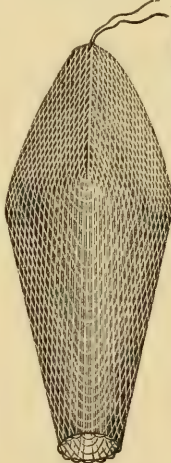


Fig. 1.

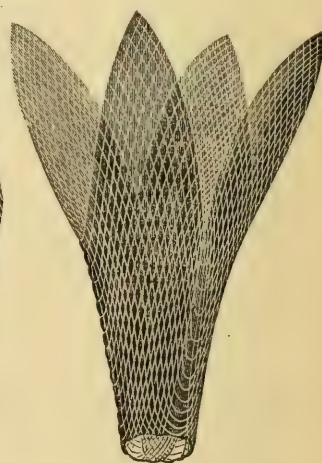


Fig. 2.

QUEEN-CELL PROTECTOR.

Our readers would doubtless like to know how to make them. A wooden punch of hard wood is turned down to an inch and a fourth in size. One end of the punch is made conical, the cone being the same size and shape of Fig. 2. A two-inch hole is bored in a block of wood two inches thick. Next put the wooden punch, the cone end downward, exactly in the center of the two-inch hole in the block. Around this pour some melted lead or babbitt metal (preferably the latter), until the hole in the block is level full of metal. Allow this to cool, and

then draw out the wooden punch. Like a "duck's foot in the mud," the conical punch will fit the inverted cone exactly. Your tool is now ready for making the wire cones as in Fig. 2.

To make the cone, take a piece of wire cloth $3\frac{1}{4}$ inches square. Place this so that its center is just over the center of the hole in the babbitt metal. The punch is now put in the center of the wire cloth, and a couple of light strokes with a hammer drives the wire cloth into the shape seen in Fig. 2, with the exception of the small end, which is closed. With the point of a pencil, crowd the central mesh in the apex until of the size of the pencil.

You observe in Fig. 2, that the corners are spread out. The queen-cell is placed snugly in the cone. The corners are then drawn together, and a short piece of wire twists the ends together as in Fig. 1. The surplus wire should be long enough to hang down between the frames. When the queen hatches she has only to crawl out at the small end of the cone.

Bees have a mania, sometimes, for tearing down queen-cells, and I have sometimes found it a very difficult matter indeed to get the bees to accept cells at all. If I had had one of these queen-cell protectors, I think I should have succeeded.

There is another use to which this cage might be put; that is, introducing fertile queens. The idea came to us quite incidentally, and we feel pretty sure it will work, although never having tried it. The cage as in Fig. 1 would be the one we should use. Put the queen to be introduced into the end of the cage, and then stop it up with a small plug of Good candy. The cage is then to be suspended between the frames. In the process of time the candy will be eaten out by the bees, and the queen liberated. Our readers will observe that this principle of introducing is the same as in the Klimitz cage, which we have tried, and know will work.

We can furnish these cages with printed instructions, at the same price as given in GLEANINGS before; i. e., 3 cts. each; 15 cts. for 10, or \$1.00 per 100. If wanted by mail, add 3 cts. for 10, or 20 cts. per 100.

ERNEST.

MR. THOMAS HORN.

ALSO SOMETHING IN REGARD TO THE RESPONSIBILITY OF EDITORS.

IN response to our editorial of Feb. 1st, 62 persons have reported having sent Mr. Horn money, amounting to \$440.00, for which little or no return was ever made. Among the whole number, only two parties have claimed that I ought to pay back the money sent to Mr. Horn. The first one is as follows:

Mr. Root:—I wrote you last season regarding an unsatisfactory transaction with Thomas Horn. I received no satisfaction from Mr. Horn. I have postponed writing to you thus long, in accordance with your request in GLEANINGS. I have always been dealt with in a straightforward manner by yourself, and I desire to continue such dealing, if

this matter of Mr. Horn is adjusted satisfactorily. Now, in this matter I consider that any paper (this, too, is only the popular verdict) in which I see an advertisement, is the first party to a transaction, the advertisers the second; therefore with me I consider GLEANINGS responsible for ten dollars, sent to Thos. Horn last May, which, to date, has failed to put in an appearance, or value thereof. If you are willing to make the matter right—that is, the principal, I will charge no interest, and will take it out in goods and subscription to GLEANINGS, and in future shall compel them (if such parties get an order from me) to take the money from you, with your permission (myself first sending it to you).

I send you the letters received from Mr. Horn. I have sent you a great deal of money, first and last. You spoke in GLEANINGS of Mr. Horn's advertising the season previously. So he did. I looked it up. *Please do so yourself.* That advertisement was not the catch-penny affair of 1886. In 1885, Aug. and Sept., Mr. Horn says, "Look here." In May, 1886, "Horn pays express charges!" It blossoms out clear across GLEANINGS, "Pure Italians exclusively," and with "Stop! read and order!" This attracts orders to his pocket, and that, it seems, is the end of the order. Having lost bees quite heavily in the winter of 1885, I ordered, relying on your superior facilities for knowing what your advertisers' responsibility amounted to. If I am to lose this money, please take my name off your subscription list, and for numbers sent, Jan. 1st and 15th, I will pay for them. Please return Mr. Horn's letter, which I send as registered mail-matter.

GEO. T. REMINGTON.

Wilmington, Del., Jan. 24, 1887.

Friend R., if I pay you back the money you have lost, of course it is my duty to pay the other \$430.00 in the same way. Where an editor, by carelessness, or even by being deceived, permits a deliberate swindler to gain access to his columns, I can pretty nearly if not quite agree with you; but if we are to be responsible in all cases where losses come, how are we to know beforehand which one of the brethren is likely to fail in business, and which one is not? Our facilities for getting at the responsibility of our advertisers are certainly superior to those of our readers. You say Mr. Horn's advertisement, to the effect that he would pay express charges, etc., bears upon the face of it the appearance of a catch-penny affair. So it did seem; but nowadays, good substantial men often make pretty liberal offers to secure custom. We made careful inquiries in regard to Mr. Horn; and not only his postmaster, but the officers of the bank in the town where he resides, pronounced him all right. He had also been doing business for several months in a satisfactory way. Suppose we had declined the advertisement, would he not have declared at once, publicly and privately, that A. I. Root would not accept any advertisement that threatened to run against his own business, or that offered things at a lower rate than he did? You know what has been said about publishers and supply-dealers, in this line. Since we are discussing this matter, perhaps it would do no harm to speak quite plainly. When the *Bee-keeper's Magazine* came out with a flaming

advertisement, to the effect that they had come down to 25 cts. a year, and also that they would send both GLEANINGS and the *Magazine* for \$1.10 we felt somewhat anxious about the matter. If we refused to accept the advertisement, we were open to the charge of being afraid of our own pocket-books: if we received it, and the journal were published for only a few months, then we should be censured, just as you are censuring me now. Is it not true, that the only thing we can do is to act according to the best of our judgment and wisdom? In regard to the *Bee-keeper's Magazine*, I am happy to say that the editors are very nice young men; and, so far as we can tell, they are quite able to send out their journal several years, without getting more for it than the value of the paper upon which it is printed, if they choose to do so. I believe them to be honest and straightforward; but I wish to be distinctly understood that *I can not be in any way responsible for the success or failure of their new undertaking*. Under the circumstances I am sorry to bid adieu to an old customer, but I do not see how I can do otherwise, conscientiously, friend R. Here is the other letter:

Mr. Root:—I see by GLEANINGS that Mr. Horn has authorized you to collect all claims against him. He is in debt to me some, but I'd rather have the letter he wrote me than his note for two years. As he says we can add 10 per cent for the use of the money, which would be unlawful in New York, 6 per cent being the interest here, he could cheat us on the note, and with a good deal more honor, than he can as it is. Mr. Root, I want to show you how I got caught by him through you. I wrote you last spring, asking you if I could buy bees and queens by the pound, and turn them into the hives on my old combs (my bees having died the winter before), and make a success of it. Instead of answering my letter you sent me a postal card referring me to your A B C book, which vexed me at the time, I having heard you are a square man to deal with. I intended to buy the bees of you. I wanted ten pounds, bees and queens, so you see if you had answered direct, saying yes or no, I should not have been caught by Horn.

Perry, N. Y., Feb. 3, 1887. JAMES R. WRIGHT.

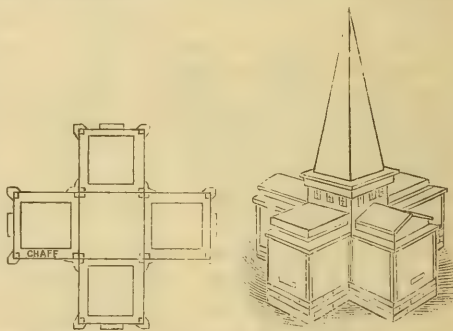
I confess that I was obliged to smile a little in reading the above, even though I am very, very sorry for our friend's losses. It looks to me something this way: He came to our store to trade, and found us so full of business that we had not time to treat him as courteously as we should have done, therefore he goes and trades at another store, and then blames me because he got into trouble. I am very sorry indeed that we are obliged to refer so many questioners to our price list and the A B C book; but so many times the clerks have given answers to inquiries that were not at all what I wished, that I have repeatedly directed them to refer such inquirers to the A B C book, where I have answered such questions carefully and deliberately. There have been so many inquiries every spring in regard to buying bees to put in hives left by the bees that have died, that I gave a page or two to the consideration of the matter, in the A B C book. The questions to be

answered are something like this: How many bees shall I purchase with the queen? Shall I buy them in April, May, or June? Is it necessary that they have a brood-comb? Will they make a full colony the first year? Shall I be likely to get any honey from them? Now, suppose I were to dictate to our shorthand writer this whole story to many different inquirers, each spring. Why, I would almost rather give them a book apiece than undertake to do it. I might have some leaflets printed, so as to cover the ground, to give away, and I believe I will have it done this very spring. I am very sorry indeed to appear disobliging, and I believe that those who have read GLEANINGS during these past years know that I do not mean to be; but, my friends, there is a limit to the mental and physical strength of even a big strong man, and I am neither the one nor the other.

HIVE-MAKING IN "THE HIEST STYLE."

FRIEND STOVER'S SUGGESTION.

FRIEND ROOT:—Being a mechanic, I have been considerably interested in the engraving on p. 278, A B C book. I also noticed your reply in GLEANINGS, to a query concerning the hexagonal bee-hive, saying the inventor tried to see what he could make. I herewith send you a drawing of a proposed chaff hive, or hives, to be of the standard size.



STOVER'S TENEMENT HIVE, ADAPTED TO THE LAWN OR FLOWER-GARDEN.

The spire is to be 6 ft. high, covered with tapered shingles $2\frac{1}{2}$ inches wide. The staff on the spire is to have a flag, not shown in the cut. It will have all the brackets that are shown in your catalogue. I expect to set it in my lawn along the street, in order to attract attention and make people "talk bees," which is the only advantage I claim for it. I have been employed by neighbors to make chaff hives; and the higher the bee-fever gets, the more hives I can sell. I purchased two colonies last summer, more for the purpose of studying the nature of bees, than for gain. I am getting to be very much interested since studying the subject. There is no telling where I shall stop. What do you think of the hive?

LEVI STOVER.

Brookville, Mont. Co., O., Feb., 1887.

I think, friend S., that it fills the bill pretty well, for all the advantages you claim for it, but you are very modest. Most of the patent-right bee-men would claim that

the bees would make more honey in it, is easier to operate, and ever so many other things besides its attractive appearance.

A PICTURE OF THE HOME OF ONE OF OUR A B C SCHOLARS.

THE PLACE WHERE FRIEND HEACOCK "GETS HAPPY."

WE have had so many pictures of apiaries that cost large amounts of money, and that were the result of years of labor, I had thought it might be a little refreshing, by way of variety, to have at least one glimpse of an apiary belonging to one of our boy bee-keepers—at least we call him a boy, for he is only 20 years old. Here is the picture, dear friends.

clear as it could be, and the thermometer stood at 66 degrees at noon in the shade. I write to you this way, because every thing I know about bees I got from you. I came here three years ago, and didn't know a bee from a yellow-jacket. So much for reading your A B C and GLEANINGS. I am an A B C scholar only 20 years old, and not very stout. I never took a chew of tobacco nor tasted whisky. Volusia, Fla., Dec. 29, 1886. O. E. HEACOCK.

Now, my young friend, I wonder if you know how much I like the ring of that last sentence of yours—"I never took a chew of tobacco nor tasted whisky." May God grant that you can say that to the end of your life! How I should like to take a half-holiday down in that Peach-tree apiary! I wonder if there is not a nice garden t'other side of that picket fence; and aren't there



PEACH-TREE APIARY, BELONGING TO ONE OF OUR BOY BEE-KEEPERS.

Friend H. does not write a very long letter, so all I can tell you about this bright little spot away down South is what we gather from the brief letter below.

WHAT AN A B C SCHOLAR SAYS ABOUT GLEANINGS AND THE A B C BOOK.

I thought you would like to see how an apiary looks in the far-off South, so I will send you a picture of mine. It was taken the 18th of Dec. While your bees in the North are housed up, ours are bringing in pollen. They have been carrying pollen and honey pretty fast for the last ten days. The peach-trees don't show very plain, for they were set out only last February; but they have grown very fast, as they are about ten feet high, and will bear peaches this next year. Christmas was the most beautiful day I ever saw. It was just as

some orange-trees somewhere in the neighborhood that bear rusty Florida oranges? Our friend Nellie Adams has just sent us two boxes of those rich, sweet, juicy Florida oranges. Why, it almost makes me well and strong just to think how I have enjoyed them. They got bruised considerably on the trip, and some of them were likely to spoil unless they were used up pretty soon, and I concluded I was just the chap to help keep them from spoiling; and when I took my tramps across the fields I used to have a big orange in each pocket and one in each hand. But, about the Peach-tree apiary: If friend H. were not present I would call attention to the fact of what a nice clean upright boy he is. He is rather tall, but he is honest and true. I do not know whether

the comb fell out of the frame he is looking at so intently, on account of the hot weather away down in Florida, or whether the engraver forgot to put it in. The small boy over there is probably his brother, and he, too, is having fun in the apiary. By the way, friends, did you know it is a grand thing to get small boys interested in bee-keeping? Perhaps it is a chunk of honey he is putting in his mouth, so as to prevent the honey from being wasted (the way I did with the Florida oranges, you know). Never mind the chunks of honey—they are better and cheaper than chunks of tobacco. The place is so pleasant that a couple of ladies have come out there to look it over. By the way, the best way to make any place in the world pleasant is to have the women-folks there. Friend H., why do you put your hives on stilts? Doesn't it bother the juvenile bees to climb up? I presume they never get chilled, however, in your sunshiny clime. Well, God bless you all, boys and girls; and if Uncle Amos goes down to Florida (which he hopes to do some time) he expects to visit the Peach-tree apiary.

MRS. COTTON'S SYSTEM OF FEEDING BEES.

EXPLAINED AND DEFENDED BY HERSELF.

I AM requested to define *clearly* my position as to feeding bees, through the columns of GLEANINGS, as there are many who mistake my position, and many who, either from a misunderstanding or from a desire to misrepresent, are constantly publishing statements calculated to mislead the public. My plan of feeding is intended to encourage the bees to breed rapidly in early spring, and to furnish the bees nearly all they require for their own consumption, that we may obtain, in glass boxes, in the best possible marketable form, nearly all they collect from natural sources.

If there were no honey obtainable from natural sources, it would not pay to feed bees; but it is plain to every intelligent person, that, in order to receive the greatest possible profit from bees, they must be fed. The only question is, how, when, and what to feed. It will pay as well to feed bees as to feed our domestic animals—cows, sheep, etc., or manure plants, or any crop the farmer cultivates, to stimulate growth and increase the product and consequent profit of the same. There are other points in my management of bees which are often misrepresented, but I have not the time or space to go over them in detail. Suffice it to say, I am ready to stand by my statements at all times; and in all my business transactions I intend to be guided by the golden rule; viz., Do by others as I wish others to do by me. MRS. L. E. COTTON.

West Gorham, Me., Feb. 14, 1887.

But, my good friend, you do not directly reply to that part of your chapter on feeding, where you state that, if sugar syrup is stored in the surplus-receptacles, no one can tell it from white-clover honey. Do you not think it would be well to change or modify this clause? The point you make, that a much larger yield of clover honey will be obtained by feeding the bees clear up to the comb-building point, is, without

question, a big item; but let us remember the charges that have been brought against us, of feeding sugar and glucose, and selling it as real honey.

HOW TO FEED BEES IN A CELLAR.

A FEW SERVICEABLE AND TIMELY HINTS FOR THE NOVICE.

TO those who have weak colonies in the cellar that need more bees or honey or both, I will say that they can be built up now just as well as when on their summer stands; and there will be no trouble about quarreling, or bees returning to the hive from which they are taken. Spread the combs of the weak colony, leaving a space in the center of the cluster of bees for one comb. Then go to any colony that has plenty of bees and honey, and get the outside comb *that has bees upon it*. You may look it over to see that the queen is not upon it, if you wish; but there is not one chance in fifty of the queen being on these outside combs, in the winter season. Place this comb of bees and honey in the center of the weak colony and they will cluster together, and all will be well. You may give them another comb in a day or two, if thought best, or two can be given at one time in the same manner. Many think that bees should not be disturbed in any manner when in the cellar; but there will no harm come to them by performing any needful operation with them in the cellar, as they will soon resume their former quiet after being disturbed. Bees will only occasionally take wing while being handled in the cellar, especially if the light is kept back and not allowed to shine directly upon them. But they have a disagreeable way of crawling about over the combs and upon the hands of the person working with them. It is better, of course, to build up or unite weak colonies in the fall, though many of us will neglect it then, and severe weather finds us with weak colonies, perhaps with valuable queens which we wish to winter over, while there are other colonies that were not "tinkered" with to introduce these queens, that have bees and honey to spare. And it is better to equalize them, as nearly as possible, in the cellar, than to leave these weak colonies to be strengthened after being placed on their summer stands. These little weak colonies, when fussed with in cool weather in April, are inclined to swarm out, and we see our little colony in the air with a valuable queen which perhaps we do not care to lose. They also have a provoking way of attempting to join some strong colony in a box hive, with crooked combs and "old black" queen, which we intended to transfer and Italianize in May, and, of course, are all slaughtered, leaving the novice with the empty combs and hives, to buy queens and try his hand at Italianizing again another year. L. C. CLARK.

Granada, Kan., Feb. 1, 1887.

Friend C., I know that bees can be fed in the way you mention, at times; and at other times (at least so it has seemed to me) the same directions do not seem to answer at all. The bees get on a stampede and fly all over the cellar, and do every thing they ought not to do. May be with some experience, however, I might manage better, for it was among my earlier experiences that I tried to feed bees in the cellar. I think,

also, there is more danger of getting the queen on your comb than you seem to recognize. Where the cellar is moderately warm, the queen will sometimes be found clear on the outside combs.

FUNCTION OF SALIVA.

PROF. COOK TALKS SCIENCE TO US SOMEWHAT.

IT will be remembered, that in my criticism of Mr. Cheshire's admirable book I said it was strange that he spoke of saliva as the digestive liquid of starch. Mr. C. also speaks of the lacteal system as the exclusive absorbent system, whereas it is well known that the portal system of blood-vessels absorbs nearly all of the digested food except the emulsified fats. I do not refer to this to condemn the book, for I think it a most valuable addition to our bee-literature—indeed, the most complete work ever written. No one person can know every thing; and to make a few errors, only shows the author to be human.

In GLEANINGS, p. 644, 1886, Mr. Cornell says I probably follow Dalton in denying that the "principal office" of saliva is to digest the starch. Now, Mr. Editor, I do not hold this opinion because Dalton does. I really believe nearly every physiologist now thinks the pancreatic juice the chief agent in changing starch into sugar, and that the principal function of saliva is mechanical. Huxley, in last Ed. Physiology, says: "The conversion of starch into sugar, which seems to be wholly or partially suspended in the stomach" (surely there was little time for change in the mouth) "is resumed, the pancreatic and intestinal juices operating powerfully in this direction." That saliva will change hydrated or cooked starch to sugar, no one doubts: that it does do it to any extent, I have not the least idea. Foster, our latest and best English authority, says, p. 242, that by the pancreatic juice the starch is changed into sugar; though most English authors, and Foster with the rest, argue that saliva may do a part of this work. Now for my reasons:

1. Saliva digests only cooked starch. Most animals do not have their starch cooked, and yet their salivary glands are as large as are ours, and they secrete as much saliva. All physiologists agree, that in dogs this is no part of the function of saliva, yet dogs secrete much saliva. Again, all physiologists know that the change which commences in the mouth stops in the stomach, and commences again only as the food comes in contact with the pancreatic juice. We all know how active the absorbent vessels of the stomach are. It is probable that the saliva is all absorbed in the stomach, and that little if any goes into the intestines where the starch is digested. Again, we all know how necessary saliva is in mastication. The great Barnard proved this by his grand experiments. Try to eat crackers when very thirsty. We can hardly do it. The blood lacks water, and the salivary glands can not secrete enough saliva to moisten the crackers. The old "rice ordeal" of India was a scientific test. The supposed criminal was asked to eat dry rice; if he could eat it quickly he was adjudged innocent; if not, guilty. It is well known, that anxiety stops secretion. The guilty man feared, knowing his guilt. His spittle was shut off, and he could not eat the rice. The

innocent man had a clear conscience; his glandular machinery worked well, and he could easily masticate and swallow the dry food.

But the most conclusive tests may be easily tried by Mr. Cornell or any other person. By macerating the salivary glands, stomach, and pancreas, separately, we can secure, by use of glycerine, the several ferments—ptyaline, of the saliva; pepsine, of the gastric juice, and the ferments of the pancreatic juice. Now, if we put the first in a test tube with cooked starch at 100° F., it commences quickly, but not very energetically, to change the starch to sugar. But as soon as we add the pepsine, the stomach ferment, acidulated by either hydro-chloric or lactic acid, this stops. Here we imitate nature exactly. But when we add the pancreatic juice to the starch it acts quickly and powerfully to transform it to sugar.

Agricultural College, Mich.

A. J. Cook.

VINEGAR FROM HONEY.

SOME VALUABLE FACTS FROM FRIEND MUTH.

FRIEND ROOT:—Having seen, in GLEANINGS, an article on honey vinegar, I shall express you a sample of ours; and if you ever saw a better article, let us know it, please. We have been making honey vinegar for the last four years, and find a ready sale for it. It eclipses the best vine vinegar for all purposes for which vinegar is used. Below I will give my modus operandi:

When making vinegar, one must know that water will turn into vinegar providing it contains the necessary quantity of sugar stuff, and is exposed to fresh air and a warm temperature. The warmer the temperature and the better the circulation of air, the sooner vinegar forms. A barrel is laid down, and an inch hole is bored in the upper end of each head, near the upper stave. This admits of a good air-passage over the body of the honey water. Tins with fine perforations nailed over these holes, with the rough side outward, exclude flies and skippers. Take about 1-lb. of honey to 1 gallon of water, thoroughly mixed up, and nail a perforated tin on the bung-hole. We take 35 to 40 lbs. of honey for a barrel containing 40 to 45 gallons of water. The warmest place in the yard is the best place for the barrel. If the sun shines on the barrel all day, it requires from the beginning of April to the end of October to make vinegar satisfactory for all purposes. If not sour enough by fall, it will be all right by Christmas or spring, if placed in the cellar or a warm room.

No vinegar should be exposed to frost before the sour fermentation is complete, as such would turn the sour into a foul fermentation, and the vinegar be lost. We made last summer, on our bee-roof, 10 bbls. of honey vinegar like the sample I send you. The retail price is 33½¢ per gallon, which gives us a better profit than the production of honey, as you will see.

CHAS. F. MUTH.

Cincinnati, Ohio, Feb. 5, 1887.

The samples of vinegar received are, to my notion, the finest I ever tasted. The honey flavor is quite perceptible, and is so pleasant to the taste I poured a tablespoonful in a glass of water and had a real refreshing tart summer drink. I do not know why it would not make a good substitute for lemonade. With such a price as you mention, friend

M., there is no trouble in making it pay; but in our market, 20 or 25 cts. seems to be about all anybody wants to pay for vinegar, even at retail.

BEE LEGISLATION.

THE CONCLUDING CHAPTER ON THE SUBJECT, AFTER WHICH FRIEND MILLER STEPS DOWN AND OUT.

NOW, Mrs. Harrison! I didn't think that of you. I thought that, instead of joining in with the crowd, your kindly nature would incline you to take up the side of the weak. Your article on page 53 speaks, like others, of priority of location, a thing which I have repeatedly said has no part in the question given to the committee of the N. A. B. K. society. You speak in your opening sentence of "such a covetous, selfish spirit manifested among bee-keepers as to favor legislation that would deprive any one, so disposed, of the pleasure of keeping bees. They must be looking," etc. Don't worry, my dear sister; there's no "they" in the case. There isn't a living soul among them, except myself, who has said he wanted any such legislation, and I am sure I shall never petition for legislation alone. Neither do I, the only covetous and selfish one in the whole lot, want any legislation that will deprive any one of the pleasure of keeping bees, any more than I would deprive them of the pleasure of farming. I would have the two callings on the same footing. I quite believe, my good friend, what you say, that you have no desire to hinder those about you from deriving pleasure from bee-keeping. But now let me put the matter in a little different shape.

Suppose this old man of whom you speak, "too feeble to do heavy farmwork," has 100 colonies of bees, his sole means of support, and these 100 colonies fully stock the pasturage within reach, would he desire, or would you desire for him, that a new man should come and plant another 100 colonies within 40 rods of his apiary? Would he want him to come with 50? would he with 10? And yet, as matters now stand, he could do nothing to prevent it.

CLASS LEGISLATION.

Several, like W. W. Maltby, on page 66, object to class legislation. What is class legislation? As I have always understood it, it is legislating in favor of a certain class as against one or more other classes. For instance, I knew a law in an Eastern State making it a criminal offense for a party other than a railroad official to sell part or the whole of an unused railroad ticket. Here was class legislation in favor of the class of railroads and against the class of travelers. I think you can hardly have class legislation without having at least two classes—for and against whom discrimination is made. But in the case of the desired bee-legislation, *against* whom is the discrimination? No one except bee-keepers cares a fig who occupies a bee-range, only so that the nectar be gathered at the least expense and sold at the lowest price. The man who owns an acre of ground or a thousand acres, but is not a bee-keeper, cares nothing about whose bees forage upon his land; only if he is intelligent he will be anxious that *somebody's* bees shall be there in sufficient number to benefit his growing crops. So as no class is legislated

against, I can not see how it can be called *class* legislation.

So, Brother Maltby,
If you can earn your salt by
Keeping bees in skeps,
Don't take any steps
To hinder legislation
In this here nation.

And now, good friends, a word in closing. I suppose you are tired of this controversy, and I am sure I am. Controversy is not at all to my taste, and in the present case I have the uncomfortable feeling that, by advancing my views, I have lowered myself in the esteem of those whose good opinion I highly value. But those views seemed to me in accordance with right and truth, and the greatest good to the greatest number. They still seem so. Here is the broad field covered with nectar in which none but bee-keepers are directly interested, and it seems to me better that each one should purchase and own his own field, moving together harmoniously, than to have struggles and dissensions, at a loss to all concerned, thereby keeping some out of the field by the uncertainty of the business. Time alone will tell whether I am a wild schemer or simply a little ahead of the times. I confess to entire error of judgment in one respect, for I thought the mass of bee-keepers would be with me as to the desirability of legislation, whatever might be thought of its feasibility. To my great surprise, all seem to have the opposite views; and as matters now stand, it seems that valuable space has been wasted in the discussion; and yet, in some way, good is always apt to come from an honest effort to get at the truth. I am very grateful to Mr. Root for the space allowed me, and for his evident desire to let me have fair play, and will now get back to other subjects where I shall not feel so lonesome.

C. C. MILLER.

Marengo, Ill.

FOUL BROOD.

ARE WE TO BLAME IF IT APPEARS IN OUR APIARIES?

FRIEND ROOT:—In your comments on my article on page 49, you say that a bee-keeper has no business having foul brood in his apiary, and so need not calculate on it. Perhaps not. Perhaps, too, he has no business having sickness in his family, and so need not calculate on ever needing a doctor, or having to use remedial measures. Some things, sometimes, may be prevented; other things, at other times, must be endured—or cured. Nobody should sit down with folded hands, and allow misfortune to overwhelm him, without an effort to prevent it; but nobody can prevent misfortune from overtaking him. To a large extent we have our fate in our own hands; but to a still greater extent we are at the mercy of circumstances, and subject to an overruling power.

If you meant to say that a bee-keeper has no business to allow foul brood to *remain* in his apiary, perhaps I can agree with you. You may mean to say, that foul brood originates only through some fault or negligence on the part of the bee-keeper. It may be so; I can not believe it. Ponder the matter as I may, I have never been able to see how any act or neglect of mine was instrumental in bringing the disease into my apiary, and I confess I have not the least idea what caused it. At the time it started, it seemed to me that it must have been caused by

the brood becoming chilled; but I do not believe it possible for the disease to originate that way. So far as I can see, there is not a bee-keeper in the land, especially if his apiary is within bee-flight, or, perhaps, within half bee-flight, of where there is or has been foul brood, that is not liable to have his bees attacked.

As to the Heddon hive, I readily admit that, under other circumstances—say in a different locality, with a different race or strain of bees, a different season, or a different system of management, I might have found my brood-chambers full of brood and empty of honey at the close of the honey-flow. I should have said of the screws, too, that I boiled a number in paraffine, and that these worked better than the others, though it is not a week since I twisted the head of one of these into splinters in trying to unscrew it, using flat pliers to twist with. Your suggestion of galvanized screws is a good one.

I, too, can say amen most heartily to the growing interest in outdoor sports, not only for children, but among people of all ages. Tobogganing is one of the most healthful of the popular-amusement crazes; and if I had ever had any objections to it I think they would have vanished with my first slide, which was before I had written the article in question. You see, I write from experience.

Dayton, Ill., Jan. 25, 1887.

J. A. GREEN.

Thanks for the correction, friend G. When I said a bee-keeper has no business *having* foul brood, I meant, of course, having it remain; and I do think, that, if he has his eyes about him, as he ought to have, he should get notice of it at the very outset. My apiarist admitted that he knew of its existence a week or two before he called our attention to the matter at all. Now, had we commenced at the very first glimpse of it, I feel quite sure it might have been stopped before it got into more than one colony, for we would have promptly burned up every comb in the hive at the outset; and I would do this, even if I found something that looked even *suspicious*.

BUMBLE-BEES.

PROF. COOK TELLS US A GOOD DEAL ABOUT THESE FRIENDS OF OURS.

YOUR request, dear Mr. Editor, in Jan. 1st GLEANINGS, that I give the biology, or life-history, of our good friends the bumble (or humble) bees was not overlooked, but until now not a moment could I spare to speak a good word for these little philanthropists, whose kind offices are hardly appreciated.

It has been no uncommon thing for our students to keep hives of these bees. Frank Benton had several colonies on our college lawn when he was here as a student. My little Bertie has often had hives of bumble-bees on our back-chamber porch, and has enjoyed watching them and studying their habits, very greatly. Mr. Editor, would it not be a wise reform to encourage our children to look on insects, frogs, etc., with interest and admiration, and not with abhorrence? I believe I am doing my children a substantial benefit in encouraging them to study insects, birds, and even bumble-bees. I spent all of last week in lecturing before the Wisconsin Farmers' Institutes, and I urged everywhere that parents encourage their children to rear insects and watch

their wonderful transformations. How easy this is! The child has but to put a cabbage caterpillar, the so-called "cabbage worm," under a common glass tumbler, with a little of its food-plant, and all the life-changes can be easily watched. What an easy way to awaken the interest and inquiry of our children, and to keep them from the street-corner, the saloon, and the jail!

The only bumble-bee that lives over the winter, in our northern latitudes, at least, is the queen. Bee-keepers are not surprised at this. The apiarist often finds his bees all dead but a handful in spring, and among the survivors he is almost sure to find the queen. Occasionally she is the only bee that survives a long journey. So, too, with bumble-bees, the queen possesses the maximum of vital force and endurance. I do not know whether the old bumble-bee queens that have done duty the previous season live over winter or not. Very likely some of them may. However this may be, the young ones certainly do.

In spring these large queens commence operations. As the workers have all succumbed to the rigors of winter, we can easily understand why we see so few bumble-bees in early spring, and why those that work so merrily upon the lilacs, dressed in their shining robes of yellow and black, are all so large. The queen finds an old mouse-nest, or some other convenient miniature cave under stone, board, or clod, and there stores a mass of pollen on which she lays her eggs. The larvæ develop much as do the immature hive-bees. When ready to transform to pupæ, they coat their cells as do the hive-bees, with a glue-like fluid which serves as a close cocoon. These cells serve afterward as honey-cells; and though big and clumsy, even more so than are the queen-cells of the honey-bee, yet in truth they are really much like them; that is, they are strengthened with wax exteriorly, and lined with a glue-like cocoon interiorly. This style of a cocoon is well shown in melting wax by use of the solar wax-extractor, as with the honey-bee's cocoon it contains very little silk, but is largely composed of a hardened glue-like substance such as lines the cocoons of most moths.

Soon the queen has several companions, the workers, which now do the outside labor, so that the queen remains mostly at the nest. In July the queens and drones begin to appear. Some of the older writers tell of two kinds of workers in the bumble-bees' nests—the large and small. It is likely that their large workers were these young queens. The drones are longer than the workers, and smaller than the queens. We often see these drones in late summer. As a boy, I called them stingless bees. No wonder. In August the bees pair. I once saw a drone and queen bumble-bee *in copulo*. They fell in the path before me, and the queen pulled away from the carcass of the drone, which surely had sacrificed its life in the performance of its duty. These young queens are the survivors of winter, and are the perpetuators of the species. The bumble-bees do not swarm, so that by July and August the nests are large and populous, and so the red clover, which depends for the most part upon bumble-bees to insure its fertilization and seeding, is fairly swarming with these valuable assistants of the farmer, upon which he depends for the seeding of one of his most valuable field crops.

Darwin was the first to show by elaborate ex-

periments that clover is dependent upon bumble-bees for full fertilization and fruitage. Dr. Beal, my colleague here at college, has experimented for years in the same line. He finds that clover covered with gauze will seed only partially, unless bumble-bees are caught and put inside the gauze. In this last case, the bumble-bees work upon the flowers, and a full yield of seed is secured. Dr. Beal has suggested to me that I experiment to learn how the queen bumble-bees may all be preserved through even our most severe winters, that our farmers may secure each year the fullest benefit from their valuable labors. Could we have bumble-bees early in the season, the first crop of our red clover would seed as abundantly as does that of white and alsike clover. These latter do not depend upon the bumble-bees, but attract and are fructified by the more numerous hive-bees, which swarm out in force, even in the early spring.

Agricultural College, Mich.

A. J. COOK.

But, friend C., don't the Italian bees, at least in a great measure, take the place of bumble-bees in fertilizing red clover? It seems to me that I find a great many more Italians on red clover than I do of bumble-bees; but perhaps they do not do the work as effectually. Is that why you speak of encouraging their propagation? Although you do not say so directly, I infer there is a kind of bumble-bee abroad in the fall of the year, that does not sting. If one could learn to tell which are drones and which are workers, by sight, we could tell when to run and when not to run. I presume, however, the drones would never show fight.

SEPARATORS.

FRIEND HEDDON ON VARIOUS MATTERS.

FRRIEND ROOT:—As I have many topics to write about, and you like short communications, I see no other way than to leave out the whys and wherefores and ask your readers to take my word for it when I give you the results of my experiments.

I have used both wood and tin separators, of various widths, for over ten years, and with sections whose tops and bottoms are $\frac{1}{8}$ thick, and whose bottoms are $\frac{3}{8}$ narrower than the sides (and I greatly prefer this $\frac{3}{8}$ difference). I have found separators $\frac{3}{4}$ inches wide just a little too narrow. I am making them $3\frac{3}{4}$ plump, to make sure of no elongated cells. I want to say to Dr. Miller, that the most skillful manipulator—one like Hutchinson, who can get beautiful straight combs without any separators—will have an ocean of trouble with separators $2\frac{1}{4}$ in. wide. I prefer tin to wood. I have used the tin T super, and it is, with all its objections, about the only practical arrangement for the use of separators without wide frames; but when I use separators (and I shall) I think I prefer the one-story, reversible wide frame.

HALF-POUND SECTIONS.

I have been reading our editor's talk about Mr. Wright, of Albany, and his half-pound sections. Do you forget that I have been one of the pioneers in using half-pound sections? Allow me to refer you to pages 5 and 27 of *A. B. J.* for 1883. During and since that year we have produced many thousand pounds of comb honey in half-pound

sections. We have tried five or six different widths, lengths, and thicknesses, and also some quarter-pound sections. We can get just as many pounds of honey stored in the smallest as in the largest sections in use. We have settled on the following size: $4\frac{1}{4}$ high x 2 13-16 long x 7 to the foot wide, between separators; six of these will fit in the same wide frame that takes four $4\frac{1}{4}$ x $4\frac{1}{4}$ x 7 to the foot sections.

For the past four years we have kept these constantly at retail in our stores, besides the $4\frac{1}{4}$ x $4\frac{1}{4}$ -pound sections; and while the latter sells by the pound at 16 cents, the former have always retailed at 10 cents each. Our stores sell about three times as many pounds of the large as of the small sections. Our large sections average a little less than 1-lb., while the small ones average a little more than half a pound.

PRICE OF HONEY.

I want to thank you for your foot-notes at the close of friend Hutchinson's article on page 102: "12 $\frac{1}{2}$ cts. per lb. wholesale," and 16 cts. per lb. to the consumer, is where I want to see good bright comb honey rest in the future. Did you ever think that grocers will work hard to hold honey up to "a penny an ounce," simply for convenience in selling the varying sections? A section weighing 14 ounces sells for 14 cents. If you want to know how much it is worth, with the price at 14 or 15 cents per lb., you can telephone your schoolteacher. Did you ever think of this? Simply on this ground alone I have held the retail market up 2 cts. at least. I say 16 cts. at retail, leaving $3\frac{1}{2}$ cts. for freights and all middlemen.

Our pound sections should vary from 1 lb. to less, never more; 16 oz. should be the maximum. You see the reason. They should be sold for just what they weigh. The $4\frac{1}{4}$ x $4\frac{1}{4}$ x 7 to the foot, with separators, is just the thing for these weights, and that thickness I find most perfectly adapted to the instincts of the bees. Quick sealing, smooth finishing, and more perfect combs, all favor this thickness here.

REPLY TO FRIEND DADANT.

Surely all will know that I wrote, or meant to write, 18, and not 28 years. However, the word *we* does not necessarily nor logically include myself. My argument would be just as true and faithful to the facts had I kept bees but two of the 18 years that my brother bee-keepers have been "introducing" extracted honey to consumers.

Mr. Robbins' article on page 94 is true to life, as I have found it, and fully answers Mr. Dadant. If it were possible I should like to believe Mr. Dadant's theory about the introduction of honey, but I should really like to feel that we are going to get it "introduced" before I die of old age. As I am unable to see that he has answered my article, or sustains his point, I will let it drop here.

REPLY TO FRIEND GREEN.

Several have written to me, asking what I have to say in reply to friend Green's reported partial failure with my new hive. I have only to say, that he did not get them of me, and that I believe they were not properly made; that there is no need of any of the failures he mentions; that glue does not bother us as much as with the L. frame; that, when the hives are properly made, the screws will always support the frames when inverted; will always turn at will, and are infinitely superior to any metal screw that can be made. After three

years' experience I can clearly see the causes of his partial failure, but will not occupy space to describe them here.

JAMES HEDDON.

Dowagiac, Mich.

PEDDLING HONEY TO FARMERS.

EXCELLENT HINTS IN REGARD TO.

READING Mr. J. B. Colton's article on page 93 prompts me to give my experience in peddling and disposing of honey. I have found a home market for my whole honey crop of 8000 lbs., with the exception of a few special orders from a distance, at an average of 8 cts. per pound.

In finding a home market, it seems to me a great mistake is made in taking it to the towns. There is always plenty of honey in town, but a dearth of it in the surrounding country. It is also a mistake to put it in the stores, to be sold on commission. The retail price is higher than consumers like to pay, and this prevents people from eating honey, except as a luxury. I have worked up a splendid home trade among the farmers, and find that they are the best customers. I left no honey in stores, to be sold on commission, neither would I advise any one else to do so. My honey is all extracted; and in selling it I am always very careful to tell the purchaser whether it be of the 1st, 2d, or 3d quality. There are as many grades of honey as of sugar, and one great mistake is made in selling for a first-class article that which really is not, thereby taking advantage of people's ignorance, and driving a sharp bargain, perhaps.

First class extracted compares favorably with comb honey of the same kind in flavor; but if it be of the first extracting, and some old honey is mixed with it, the flavor is changed, and some one, no doubt, will compare it with the comb honey, and then declare there is something wrong, and won't buy any more of it. The producer should know better than any one else the quality of his honey, and it is imperative that he represent it exactly as it is. He will gain the confidence of his customers, and lose nothing by it. As a rule, the majority of people will not go to any place to buy honey; but if it is brought to their doors, and they are allowed to sample it, they will buy much more readily. I have found peddling in town up-hill business. Among the well-to-do farmers, I have sold the bulk of my honey in 25 and 50 lb. lots, at 8 cts. per lb., and for smaller sales, 9 cts. As an instance, I sold, in six consecutive houses, 80, 25, 53, 40, 25, and 37 lbs., or 260 lbs. in all—all I had with me, and I have frequently sold a barrel in half a day. Next year I intend to sell all I raise, more easily than I have this.

For actual use in the family, I sold to one, 180 lbs.; another, 145 lbs.; and to quite a number, 100 lbs. Had I sold it at 10 cts., I could not have disposed of much; but at 8 cts. it is used instead of syrups.

Now as to delivery. In the fall I loaded a barrel on a spring wagon, and, using a honey-gate, I drew it off in any convenient vessel in the winter. The honey was taken out of the 50-gallon storage-barrels, and warmed so as to take out the granulation, then drawn off into 50-lb. kegs for convenience. This winter, most of it was sold in the keg, the keg being reserved for next season's use.

By way of caution, let me say, do not sell granulated honey except to old customers. Better make a warming-pan of galvanized iron that will cover the entire top of a stove or arch, and warm it over. If it is then drawn into kegs or other vessels, and made air-tight, it will keep a long time without granulating, and can be disposed of to much better advantage.

A great many people think that candied honey has glucose in it, and it is almost impossible to overcome that idea. Always be sure to tell them that it will candy, and also to keep it out of the cellar.

ROLAND SHERBURNE.

Lone Tree, Ia., Feb. 14, 1887.

PEDDLING HONEY A SUCCESS.

HOW THE BROWN-EYED BETTER HALF BEAT THE OTHER HALF.

AFTER reading friend Colton's article on page 93 I feel like giving my experience on peddling honey. By consulting our book I find we have produced and sold, during the past few seasons, about 12,000 lbs. of extracted honey. Our honey is all put in 58-lb. kegs, which have been waxed. After getting it all in kegs, and before it gets thick, we do our peddling. With horses and buggy and large bottles we go out through the country and stop at every farmer's house that we consider sure pay, and let them taste our finest clover honey, stating that we have it in kegs just the right size for family use, and that we will deliver the next day. Now he will say he has no money at present. Our reply always is, that it makes no difference at all about that, he can pay when he pleases, which most of the time will be next day. The next day we deliver the honey sold the day before. The kegs are all labeled with our name and candying notice.

Now, to give you an idea how fast honey can be sold in this way, I will say that, on my first trip, I sold in one afternoon 60 gallons. "Ah!" I think I hear you say, "there can't be much honey in your neighborhood." Well, I have just ascertained that there has been no less than 80,000 lbs. produced during the past season by nine bee-keepers within eight miles of us. Now don't say that I am an expert peddler, for that brown-eyed woman whom Belle and Charley call "ma" took it in her head to see what she could do this fall, and she drove her own team, and sold, in one short afternoon, eight 58-lb. kegs, averaging over one keg an hour; and I was told next day, while delivering, that I was nowhere, compared with my "better half."

In conclusion I would say, put your honey in kegs well waxed; never charge for kegs, but get them back when you can; don't scold or look cross if kegs or hoops are lost. Never deliver the honey while selling, as you will not sell more than half as much, as you will find by trying; don't peddle in towns, except by the keg; don't think, because you go over a route this year it will do for next year; never change the price during the season, if you can avoid it; but if you should find it necessary to lower your price, promptly notify all who have bought of you by the keg that you have placed the difference to their credit. Our 4000 lbs. of this season is all sold, and we have had several calls for more. Now, Mr. Root, I can not help but think that, if all our bee-men who can would do this way,

our markets would not be so overstocked, and prices forced down so low. W. W. McKEE.

Dyersville, Ia., Feb. 12, 1887.

We are exceedingly obliged to these two friends for the good suggestions they have made in retailing honey. To be able to sell our honey crop is half the secret of our chosen pursuit. We should be glad to hear from others on this subject, whether their success has been good or ill. We all want to know how, and there is no better way to get honey introduced into families.

REPORTS ENCOURAGING.

WHAT WAS DONE WITH A NUCLEUS.

I WILL furnish you a report from the nucleus bought of you last spring. I increased naturally to 4 good strong colonies, all fine bright fellows, and took a quantity of honey. They are now well provided for, and snugly packed away for the winter, all doing nicely. I have, besides, 8 hybrid colonies in good condition.

Jan. 27, 1887.

M. G. BAXTER.

FROM 37 TO 70, AND 5000 LBS. OF HONEY.

I commenced the season last spring with 37 stands, increased to 70, and took 4500 lbs. of comb and 500 of extracted honey, nearly all from white clover.

Winthrop, Ia., Jan. 25, 1887. E. P. BRINTNALL.

A GOOD FLY.

Bees had a good fly Jan. 20. Only one colony dead out of 146. Two more were in bad condition. I united them, which leaves me 144 stocks, most of which are in first-class condition. A. N. DRAPER.

Upper Alton, Ill., Jan. 31, 1887.

FROM 9 TO 35, AND 1035 LBS. OF HONEY.

I started in last spring with 9 colonies; increased to 32; got 1035 lbs. of comb honey. My bees are all in good condition, with plenty of honey. They are Italians.

W. M. SWEANEY.

Sandyville, O., Feb. 7, 1887.

FROM 4 TO 9, AND 600 LBS. OF HONEY.

I began last spring with three full colonies and one five-frame nucleus. I increased to nine colonies, and took 600 lbs. of honey in pound sections. The nine colonies went into winter quarters with ten full frames each. All of my combs built last year were built on full sheets of wired foundation.

Greenfield, Ia., Feb. 7, 1887. J. E. BROOKS.

FROM 88 TO 109, AND 24,000 LBS. OF HONEY—AN AVERAGE OF 272 LBS., SPRING COUNT.

My crop of honey was the best the past season that I ever made. I secured 24,000 lbs. from 88 colonies, spring count, and increased to 109. Between 18,000 and 19,000 lbs. of my crop was white honey, the rest honey-dew, or "black-jack," as we call it here. This honey was all extracted. No feeding was necessary for winter. My crop in 1885 was 3000 lbs., and I fed 1500 lbs. of it, spring and fall.

Farley, Iowa, Feb. 1, 1887.

JAS. SCOTT.

Friend S., you have given us a rousing report. Now we should like to know something about your locality, and also by what plan or system you managed to secure such

a large yield. Did you do the work alone, or did you employ help?

HEALTH IMPROVED BY ENGAGING IN BEE-KEEPING; HOLY-LANDS.

I have been keeping bees for fifteen years, but I took no interest in bee culture until 1882. I have been sickly for a number of years. I was advised to go into the business, which I did; and up to this date I have been wonderfully improved in health. My strain of bees is of pure Holy-Land stock. I have sold a large number of them at my home and abroad, and they give perfect satisfaction. They are docile in every way to work with. We have quite a number of bee-men in this part of the country.

GEO. D. RAUDENBUSH.

Reading, Berks Co., Pa.

NEW HONEY IN OHIO ON THE FIRST DAY OF MAY.

I commenced the season of 1886 with 11 swarms of bees; lost 12 swarms the previous winter. The season opened up very early. I saw bees working on apple-blossoms on Easter Sunday, April 25, 1886. I had something similar to the Hill device over the hives. I did not unpack my bees until pretty well along in May. I left the devices on the hives. I examined some of my bees May 1, and I found that one swarm had three or four pounds of honey built under one of the said devices, so we had new honey made in 1886, for supper, on the first day of May. Can any one beat that? I should like to hear from them if they can.

J. S. BARB.

Bristol, O., Feb. 15, 1887.

A BETTER SHOWING FOR THE ITALIANS; AN AVERAGE OF 50 LBS. PER COLONY FOR HYBRIDS, AND 260 LBS. PER COLONY FOR ITALIANS.

It takes about the same amount of work to sell the honey as it does to get it. My honey is nearly all sold at an average price of 6 cents for extracted, and 11 cents for comb honey. In the fall of 1885 I prepared for winter 124 colonies—90 in cellar and 34 in chaff hives. I lost one colony in a chaff hive, which was queenless in the fall, and sold 13. This left me 110 in all; of this number, 30 colonies were hybrids. These I moved to a place two miles from my home yard, so they would not bother me in my queen-rearing. They gathered about 1500 lbs. of comb honey in one and two pound sections, and increased to 56. I have sold them. Hybrids of the first cross are good honey-gatherers, but too energetic with their stings to suit me. I want no more of them. The 80 colonies that I kept at home were mostly nuclei, with young queens raised the fall before. It was surprising to see how soon they made good strong colonies. About June first I united 20 of the weakest with others that had poor queens, and used several colonies to make nuclei for queen-rearing, which left me about 50 strong colonies with No. 1 queens. I took from these colonies 11,000 lbs. of extracted honey and 1000 lbs. in combs, to feed next spring, and increased to 120. They were not black bees either.

G. D. BLACK.

Brandon, Iowa, Feb. 8, 1887.

Many thanks, friend B. It seems from the above that your Italians are not only gentler than the hybrids, but they gathered over five times as much honey per colony. Is it locality, manipulation, or the race of bees that made this difference? Perhaps friend Black or E. France can tell us.

REPORTS DISCOURAGING.

A TOTAL FAILURE, AND LOSS OF OVER \$300.

I STARTED in spring with 20 colonies—10 strong and 10 from very weak to medium; increased to 48, including five nuclei. I sold five nuclei—3 colonies, and about \$22.00 worth of queens, which left me 40 colonies, and I did not get 40 lbs. of honey from the 40 colonies in 1886. I am out about \$125 in honey, and about \$200 worth of time. We have had a failure in the honey-crop every year since I have been in the business. I wish you and Dr. C. C. Miller had got a law passed in 1882, prohibiting anybody but you two from keeping bees. I should have been about \$300 better off.

JNO. W. MARTIN.

Greenwood Depot, Va., Jan. 15, 1887.

A FIT SUBJECT FOR BLASTED HOPES.

Since I am writing, I will hand in my report for the past year. I had, to go into the winter of 1885, 14 stands in Simplicity hives. All came through strong and healthy. They commenced swarming early; increased to 27. Up to July 1st my bees did well; but from that time on they rather went back; and by the 1st of October there were scores of bees starved to death. I lost none, but doubled back to 24; took 150 lbs. of comb honey from 14 colonies, spring count, no extracted. My bees are all right yet, but rather poor for so many stands. If you have Blasted Hopes yet, you might put a few like me in for a while, just to see how we would like it.

Fairfield, Pa., Jan. 1, 1887.

J. A. KIME.

DID NOT PAY.

I do not like to report discouragingly for the bee-business, but I am afraid I shall have to, as my loss in experimenting during the past year will be over \$100.

J. C. FRISBEE.

Suffolk, Va., Dec. 27, 1886.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HIVES PATENTED IN THE UNITED STATES—THEIR DECREASE.

WE are indebted to the *British Bee-Journal* of Feb. 3 for the following item in regard to the decrease in the number of patents on hives issued in the United States from year to year, up to and including part of 1886:

Your readers may not be aware that the specifications of patents taken out in all countries where there is a patent-law are filed and can be inspected in the library at the Patent-Office, Chancery Lane, without payment of any fee, simply by signing your name and address in a book as you enter. There is also a library of the scientific books of all countries.

After the little business I had at the Patent-Office this week was done I amused myself looking at the places and specifications of some of the American bee-hives. Seeing from the general indexes the great number of hives that had been patented in the United States I thought it might be of interest to your readers to know the number of patents taken out under the heading "bee-hives," not including extractors, feeders, smokers, etc., and I counted up the numbers, which are as follows:—From the commencement up to the end of the year 1873, 591; 1874, 22; 1875, 17; 1876, 22; 1877, 33; 1878, 33; 1879, 18; 1880, 12; 1881, 10; 1882, 8; 1883, 16; 1884, 8; 1885, 20; part of 1886, 6. Total, 816.

You will see that the year 1886 is not yet completed, but up to the latest returns the enormous number of 816 patents have been taken out for "bee hives." I examined about 30 of the most recent ones, and I should much like those gentlemen who consider that we get all our best ideas from America to spend a day there in search of ideas worthy of imitation, and I feel convinced that, whatever their opinion of the superiority of American appliances had previously been, he will go away surprised to find that any one would ever patent the rubbish he sees illustrated and described there. Upon inquiry of a patent-agent, I find a patent costs more than here, since the alteration of our patent-law.

JOHN M. HOOKER.

WILL THE THE NEXT YEAR'S HONEY CROP FOR CALIFORNIA BE A FAILURE?

I am in receipt of a letter dated Feb. 5, from my agent at San Buenaventura, Cal., stating that, up to that time, the rainfall in Southern California for this winter had been less than two inches. He says that, unless the rain comes soon, the California honey-crop will be a failure, as it takes from 10 to 18 inches to insure a crop of honey there.

While this is bad luck for our brothers across the continent, it may help to advance the price here; and let us try to make what is their unavoidable loss our material gain, and not be led to sell our honey at a low figure by those who wish to buy on the strength of "an immense crop in California."

Wyoming, N. Y.

G. W. STANLEY.

MOVING BEES.

Friend Root:—I wish to ask a little advice in regard to moving my bees. I have about 70 colonies to move about 225 yards south of their present location. The lay of the land is about the same; viz., sloping southwest, but the new location is much steeper ground, and the location of the hives will have to be in an altogether different shape than they are in at present. The bees are all in Simplicity-Langstroth hives, and contain from 4 to 20 frames each. What I wish to know is, how to move them with least loss, the best time in the spring to do it, and how to do it with the greatest ease. I am not very strong physically. If the editor, or any of the readers of *GLEANINGS*, have any suggestions to offer they will be thankfully received.

SUBSCRIBER.

New Brighton, Pa., Jan. 24, 1887.

It will be a little difficult, my friend, to have your bees adhere to their new location, unless the weather should favor you. If they can stand on the new site, say a couple of weeks, when there is no weather permitting them to fly, most of them will return to their new location. If, however, a warm day occurs shortly after moving them, so many bees will be lost it may be the ruin of a good many of your colonies. It is a very difficult matter indeed to move bees short distances, unless the weather happens to be favorable, as above. For further remarks on this subject, see "Moving Bees," in the A B C book.

IMPORTED QUEENS FROM BRANCONINI.

I have read your answer to Mr. Hudson, in the Dec. 1st No. 1, 1886, page 946. I thank you for what you have written of me, and please hear why you are quite right in so thinking. I do not charge more for Australia (proportionally) than for other countries, on account of difficulty of transportation. I have arranged, with my Australian patrons, one price for every town and every month, and the price is as low as possible. In fact, we

charge only 15 francs for every box; and the expense for sending to Australia, having to be paid beforehand, we pay about 4 francs on each queen. The boxes for that country must be larger, and contain a larger number of bees, a greater quantity of honey, and room for water—more than those for others. It is also to be remarked, that we receive orders of only 8, or at most 12 queens at once.

Bologna, Italy, Jan. 4. CHAS. BIANCONCINI.

The above gives the solution, friends. Queens to Australia must be prepaid for at least the greater part of the route.

LARGE HONEY-YIELDS.

In regard to immense yields by single colonies, frequently reported, I have been under the impression that they are stolen from other colonies. In the January 15th number of GLEANINGS, Emil J. Baxter mentions a yield of 560 lbs. he had from one colony. I believe his bees in that hive quietly stole the honey from other hives. This quiet stealing has been mentioned before in GLEANINGS. If those who have one or more of these big yielders will dust, with powdered chalk or flour, the bees of the big-yielding colony, and watch carefully, I believe they will find them the poorest lot in the yard. Try it next season.

E. E. EWING.

Rising Sun, Md., Jan. 22, 1887.

Friend E., I am sure you are entirely in the wrong. Bees may get a little honey, it is true, by this quiet way of stealing, but it is quite out of the question for them to get such a quantity as friend Baxter mentions. To get such an enormous crop, they would have to labor not only weeks but months, and that, too, on the high-pressure principle. When Italians were first introduced, it was suggested by a good many that the large yields were made by stealing from other bees; and men in our own vicinity, who ought to have good judgment, claimed that our Italians took all the honey from their hives as fast as the native bees could gather it. When these great yields are coming in, it is a very easy matter to follow the bees and see where they get it; and I believe that most bee-keepers are in the habit of finding out the source of these great accumulations. Dusting them with flour is an excellent idea, to enable us to identify them; but I think you will find them on the bass-wood-trees, in the clover-fields, or at some other honest and legitimate work.

BEEES TOO NEAR A RAILROAD, MILL, ETC.

In your issue of Jan. 15th I note a communication, page 50, in regard to the disturbance, in winter, of bees situated too near a railroad. I have had no experience myself, being two miles from the railroad; but last summer I visited the large flouring-mill of Mr. J. B. Ward, of our county, and he, being a bee-keeper as well as a miller, I was not long at the mill before I made inquiry about his bees, as I saw none in his yard or garden. His residence is situated but a few yards from the mill, just across and near the road, and the mill upon a high bluff of limestone rock on Stone River. Before he moved his bees near the mill he was a large honey-producer, and, withal, an experienced and scientific manipulator with bees. He informed me his bees did no good, made no surplus worth the trouble of taking, for two years, when kept near

the mill, and he moved them to his mother's, some two miles off, where they were doing well, although inconvenient for his attention. It was his opinion, that the roar of the mill, and tremulous motion the stones produced when running, disturbed them too much in their work. As the mill frequently runs all night, and also all winter, it may have been the disturbance, at these times, when they were not at work, that caused them so much uneasiness they did no good. He also lives near the line of the N. C. and St. L. Railroad.

W. P. HENDERSON.

Murfreesboro, Tenn.

MR. BINGHAM'S COMMENTS ON THE ARTICLE ON P. 44: A CORRECTION.

I have often recalled my visit to your beautiful home and shops with great pleasure. The multitude of incidents following my visit, and the Albany Convention, prevented my reading Jan. 15th GLEANINGS until yesterday, when lo! on page 44 an account of my wanderings confronted me. The report of my hive is all right; but that about the one filling of smoker making abundant smoke for use all day is rather "too good." I did not mean to be so understood. I probably said that the fire would not go out; but I did not mean that once filling with sound maple wood was sufficient for abundant use all day. The best thing that can be said of a Bm. smoker is, that it burns fuel fast—sufficiently fast to make enough smoke for *instant use without working the bellows*—just when there is no time to work up a fire. Smoke can not be made without fire. The old saying, "There must be some fire where there is so much smoke," proves to be correct in the case of bee-smokers, if they are always ready with a big puff of smoke to turn the heads of alert hybrids. I shall be glad to send you a smoker to try, and will do so soon.

T. F. BINGHAM.

Abronia, Mich., Feb. 11, 1887.

Thanks, friend B. I beg pardon if I misunderstood you in regard to the time your smoker will run without filling.

HOW TO WARM A CELLAR BY MEANS OF THE SQUARE CANS.

It is impossible to keep the temperature in my cellar up to 45° this winter without the use of artificial heat. I think the frost has penetrated the earth to a greater depth than usual. I have a 6-in. ventilating-pipe, 70 ft. long, laid 5 ft. below the surface; and the air, as it enters the cellar, is 38°, or 4° colder than it was last winter. As I did not like to risk a stove of any kind in the cellar, I thought I would try warming it with hot water. I do not know of a better way to handle the hot water than to have it in the 5-gallon square tin honey-cans. Four of them can be set on the cook-stove at once. I do not think that an open vessel would do, as the vapor would make the cellar too damp. The caps must not be screwed down tight when on the stove, or the cans will burst when the water boils.

The number of cans needed will depend upon the size and coldness of the cellar. My cellar is 14x14x 8½ ft., and contains 60 colonies of bees, and I find that two cans heated once in 24 hours will keep it about 4° warmer than it would otherwise be. The water will give out the heat gradually during 24 hours, so as not to excite the bees as the heat from a stove would. I think it is less work to carry the water up and down cellar than to tend an extra stove.

Brandon, Iowa, Feb. 12, 1887.

G. D. BLACK.

MYSELF AND MY NEIGHBORS.

Be kindly affectioned one to another with brotherly love; in honor preferring one another.—ROMANS 12: 10.

SOME of our neighbors are next door, others across the street, and still others are a mile away—may be eight or ten miles. It is the latter class of which I am going to speak this morning. The papers announced that there was to be a farmers' institute in a neighboring town. Across the country it is only ten or twelve miles; but as this is the season of Medina mud, we consider it easier to go perhaps 25 miles by means of three different railroads than to undertake to go "cross lots." If the three roads made connection as usual, I should get through in a couple of hours; but they did not connect, and there was a prospect before me of missing the proceedings of the first day. I could make the next station, however, by going two miles and a half on foot, and I very quickly decided to do this, for I have learned by experience that, when you are apparently brought up short, it does not do any harm to push ahead against obstacles, even if it must be done on foot. I had started out on this trip because it seemed as if God called me that way; and if it were in answer to this call, what anxiety need I have as to the result? My part was simply to say, "Here, Lord, am I, several miles from home, and my plans frustrated. What hast thou for me to do?" I looked back when I had hurriedly walked perhaps half the distance, and saw a fellow-traveler carrying two bundles. When you are wanting some opportunity to serve the Master, and you see somebody walking with two bundles, I think it is very safe to ask permission to carry one of them. Just a little while before, I had passed two other fellow-travelers. I slackened my pace for awhile, wondering if God had given me any message to them. Their principal comfort, however, seemed to come from the tobacco they passed back and forth, and evidently their tastes and mine were in different lines, so I courteously bade them good-day and pushed ahead. I almost always go ahead of other people when I walk, even if I am a small man. Well, now, this man with the two bundles walked even faster than I did. I found that he lived at our destination, where the farmers' institute was held. Furthermore, he is a devoted and earnest Christian; yes, and he is a banker besides. He gave me an account of the town of L., which was very interesting indeed; and as he is a Sabbath-school worker, and has the welfare of all the people at heart, we found many topics of mutual interest. Before returning home I formed an acquaintance with this man, which I shall remember as long as I live, and I shall always be the happier for it, because I know of one more who is hungering and thirsting after righteousness, and who is working and praying for the Master.

When we reached the station we were told there was no train for two hours and a half—no train of any sort. This cut off absolutely all chance of hearing friend Terry for

the afternoon. Now, although the station-agent told us there was no sort of a train, in about an hour a coal-train came along. A hot box obliged them to stop. The engineer said very flatly, however, they did not carry passengers "nohow." With some people this would have settled the matter; but it didn't with me, even when the conductor said the same thing. Did you ever know, my friend, how much difference it makes, in the way you approach a neighbor? I did not say any thing until I caught his eye, and then I good-naturedly replied, "My friend, I am very anxious indeed to reach L.; and if you will tell me what I shall do to get permission for you to carry us, I shall be very much obliged." His face softened a little, and he said I might telegraph to the superintendent, if I cared to. The telegraph operator did not seem to be very willing until we showed him some money, and told him we were ready to pay for all the trouble we made, whether he got us through or not. Now, please bear in mind that these neighbors of ours, especially at telegraph-offices and railway-stations, are often thoughtlessly hindered and annoyed, and very often by people who are not willing to pay for the trouble they make. A telegram came back immediately, saying, "Carry the passengers, providing they do not hinder in any way or manner." The conductor then told us if we were willing to jump off a little out of town, and foot it to the depot, we could go. Of course, we gladly consented. Now, I know from experience, dear friends, there are people who ask favors of this kind, and then demand to be set down at the depot, and other things of a like nature, in a way to hinder, more than they perhaps realize. The telegraph operator did not take any of our money for his trouble, after all. You see, we began to get acquainted a little, and he recognized us as business men who were accustomed to business, and knew better than to hinder, or even try to hinder, a railway train that must make its appointments.

A man that hath friends must show himself friendly; and there is a friend that sticketh closer than a brother.—PROV. 18: 24.

I can not tell you what a pleasant afternoon we had at the convention. Two or three hundred live young farmers sat at the feet, as it were, of friend Terry and of those who were capable of teaching improved agriculture, and drank in their words in a way that was very encouraging—at least to myself. When opportunity was given they took part, and I confess it greatly surprised me to find there were, within ten miles of my home, such a large number of really go-ahead, progressive young men—yes, young men and boys who had been putting in practice Terry's teachings in regard to potatoes, live stock, and even the adornment of their homes and farms.

Now, in this paper to-day, I wish specially to illustrate how much we lose by not interchanging ideas, or getting acquainted; and, by the way, one young friend at the institute gave us a most excellent talk on this very subject of getting acquainted with each other. He said one of his neighbors,

but a few miles away, gave him more valuable information on potato-growing in *one evening* than he had learned by experience in many years; and this man was ready to talk, and *glad* to talk, and yet the young man had never visited him before. None of us know what there is going on close at home; we do not know of the valuable information that somebody, even in the same room, might be able to communicate if we follow the spirit of the little text at the head of this chapter. Now listen. Of course, I was invited to stay over night with one of the bee-friends. While supper was being prepared I was left for a little time alone with an elderly lady who was also stopping there, but with whom I was, of course, unacquainted. I had simply been introduced to her, that was all. Books and papers lay on the center-table, and the question arose, Shall I look at the books, or shall I exert myself a little to throw off my natural bashfulness, and get acquainted. I was somewhat tired, and did not feel much like talking—at least, I did not suppose the other occupant of the neat little parlor would be interested in any of the topics that interested myself. It is true, if I had been practicing what I preach I might have very soon found out whether she loved the Lord or not; and if she did, as most women-kind do, of course there would be a common ground on which we could meet and feel mutually interested. The truth was, I had been kept in the audience-room a good many hours, and I naturally pined for the open fields; yes, I would have got out and run across the lots, even if it was frosty and after dark, had I thought it was the proper thing to do. God's voice seemed to indicate, however, that I should get acquainted, and I am very glad I overcame my weariness enough to obey. Pretty soon I found she had a son-in-law, who is one of the progressive farmers. This son-in-law had been investing a great deal of time and money in a vain attempt to thoroughly underdrain the marshy slope or sidehill near his barn. His mother-in-law was telling me how sorry she felt to see him try so many times, and fail, and his last bold attempt was the saddest of all, because he finally did *succeed*. This apparent contradiction is explained by saying that, when he got the water out of the sidehill, he dried up a spring some distance away, but *close to his barn*, where he had for years been watering his herd of choice Jerseys, his horses, and other stock. He had killed the bird that had for so many years stood in the way of his crops of potatoes and corn; but the *stone* that killed the bird knocked the bottom out of his nice well. At supper I asked my host how far away this son-in-law lived. He said it was about a mile. I begged to go and see him, but he told me it would be night before I got there. I fairly hungered for the open fields, underdrains, and swamp muck, and he finally agreed to go with me. When we neared the spot we heard the sound of babbling brooks, or gurgling water. By the way, running water has always had a fascination about it to my ears. Pretty soon there was more sound of running water,

and finally I was reminded of the words of Revelation, where John compares the voice of Christ which he heard, to the "sound of many waters." This young man, whose mother-in-law felt anxious about him, had, in his first experiments, been thwarted in his work by the tile filling up with black mud and silt. To overcome this he made large silt-basins, perhaps a yard square, and four to six feet deep. Into the silt-basins the tile emptied. Now, the inlet tile was perhaps six inches higher up than the outlet tile; and the result was, the water poured a few inches into the basin below. As these wooden curbs, or silt-basins, were scattered over the field, the sound of the pouring water under ground was what reached my ears and stirred me with enthusiasm. I could not very well see what the soil looked like, but I kicked into it with my foot, and took up handfuls. I did not need to be told it would raise potatoes. Occasionally the stalk of a big weed reared itself almost above my head. This weed had started after the drains were put in. All our friend needs is a windmill to lift the water up, and he will have a much better arrangement than he had before. The only trouble is, he has spent so much money in the drainage business that he feels as if he could not spare the cash for even a windmill just yet.

We went into the stables. He has a large tank to catch rain-water, and iron pipes convey the water to different parts of his barn, so that the labor of caring for his stock is comparatively light in the way of water during a season of plenty of rain. The barn is a model of neatness. There was one Jersey heifer there, not only nicer than any thing in the line of cattle-kind my eyes had ever rested on, but I did not know before that it was possible for a calf to be so pretty. I was strongly tempted to hand over the price of her, without thinking the matter over. It was only \$100, dear reader; but the owner had worked hard for his fine stock, and I like to see such men get a good reward. He, too, is a Christian, and day by day asks God's blessing on his labors; and even if the bottom of his well does drop out, and other like calamities occur, now and then, his faith in God does not waver. Why, dear friends, I do not know of any thing that I look forward to with more pleasure than a buggy-ride over to his place some afternoon, to see how his crops look on that beautiful soil, with the gurgling water prattling its story but a few feet distant in any direction. Now, this young friend is not alone. There are other young farmers all around him, enthusiastic over the matter of underdraining the Harrisville swamp that has been a great dreary waste for years and years; and during all the deliberations of the institute, I can not remember that there was a single unkind reflection. There were differences of opinion, but they were met in the spirit of our beautiful text:

Be kindly affectioned one to another with brotherly love; in honor preferring one another.

And they also showed forth most vividly the spirit of the verse just after our text—"Not slothful in business; fervent in spirit, serving the Lord."

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

ONE-STORY AND TWO-STORY CHAFF HIVES.

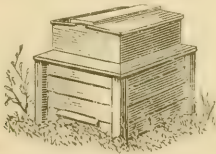
AS announced in the heading, I propose to chat with our readers in regard to the relative merits of the single-story and the two-story chaff hives. In discussing this matter, I do not wish to say any thing to detract from the merits of the old, true, and tried two-story chaff hive—the hive that has given such splendid results in wintering in almost all locations; but I feel constrained to point out some of the defects which have been named against it.

In the first place, when the upper story of the large chaff hive is filled with frames, there has yet been no feasible means of removing the brood-frames below without taking out singly each one of the wide frames. This has been considered one of its most serious defects.

Second, it does not permit tiering up more than two rows of sections high. It is sometimes necessary for us, in order to get the full benefit of the honey-flow, to tier up four or five sections high.

Third, the hive is rather unwieldy, especially for women and others who are not blessed with the average amount of physical strength.

Fourth, it is not interchangeable with the Simplicity hive. It requires a cover, cushion, and, in order to get the best advantages, supers peculiar to itself. However, it takes any of the brood-frames or wide frames fitting the Simplicity hives. Considerable thought has been expended as to how one or more of these defects could be obviated, but nothing really practicable has ever been suggested till the hive below was devised.



ONE-STORY CHAFF HIVE. HALF-STORY COVER.

The cut represents the single-story hive, which we have made and sold for the past six years; but as it was so much smaller we feared to recommend it very highly as a substitute for the larger hive. However, since that time the hive has proven itself to be a good one for wintering—at least, in this locality. Perhaps, then, it may not be out of place to mention some of its good features. You observe, that it is hardly more than a double-walled Simplicity hive, and might very appropriately be called the Simplicity chaff hive. It is perfectly interchangeable with the Simplicity hive and furniture; i. e., it will take both the flat or half-story cover, any of the Simplicity crates or supers, and the Simplicity body, the latter to be used for an upper story or for tiering up. When this small chaff hive has a Simplicity upper story on it filled with frames,

the brood-chamber is readily accessible by simply lifting off the upper story. The hive is also cheaper than the large one.

THE ONE-STORY CHAFF HIVE FOR WINTERING.

I feel just a little hesitancy in recommending this single-story chaff hive too strongly. If it will winter bees just as well as the two-story chaff hive, for the reasons named above, I should very greatly prefer it. However, in this locality, as far as tried, it has wintered colonies just as well, and in some cases it seemed to do better, than the two-story chaff hive. The style of this hive was devised by our foreman, Mr. Warner, some six years ago. A year before they were offered for sale, Mr. Warner tried 15 of these single-story chaff hives alongside of an equal number of two-story chaff hives. From the former he lost one colony during the winter. From the latter he lost three. This may have been merely an accident, but at any rate it goes to prove that the single-story chaff hive does just us well. One of our former employes has tried wintering four colonies in these for two or three years, and he reports that they wintered his colonies successfully. One of our sawyers, Mr. Will Turner, tried wintering four colonies in them last year, and he says they all came out in good condition. For the last four years we have tried wintering one colony in our apiary in this one-story hive, and every year that colony has wintered as well as the rest. Last fall I determined to try four of these one-story chaff hives under various circumstances. When I went through the apiary a few days ago I could not see that there was any difference in the way their colonies were wintering compared with the colonies in our two-story chaff hives. I have no doubt but that they will come out in the spring all right.

Now, there are other incidents I could mention; but the foregoing will suffice. But please bear in mind, that this is for only one locality; and while they might winter colonies successfully here at the Home of the Honey-Bees and vicinity, they might not do as well where the climate is more severe.

I will say from experience, right here, that these little hives will give better results in wintering if you put the Simplicity body on top, filled with chaff, than if you cover the brood-nest with a half-story cover only, in which a chaff cushion fits.

OUR BEES UP TO DATE.

One day last week, the weather being favorable, the apiarist and myself examined all of our colonies to see whether any of them might be needing stores, or whether any might need doubling up. Not one of our colonies has died up to date. Not only that, but they are in splendid condition. There were only three colonies in the whole apiary that seemed a little uneasy, but in other respects they appeared to be all right. The remaining colonies were in nice compact clusters; and when I pulled up the burlap and peered into them they really seemed stronger than when they were put into winter quarters last fall; at any rate, we found scarcely a dead bee at the entrance

of any of the hives, so that I believe we have now about as many bees per hive as we had when we put them into winter quarters. None of the colonies showed any indications of dysentery. In all the colonies examined, we found just one that we thought had better be united to another. The results up to date, certainly are gratifying, considering that, a year ago at this date, I found we had lost one colony, and two or three more showed signs of dysentery. However, we have two more months for the bees to pass through, so that we can not count our chickens just yet.

FOUL BROOD.

As I did not think it advisable to disturb the winter brood-nest, we did not pull our colonies apart to ascertain whether they had commenced rearing brood, so that we can not give any information yet as to whether foul brood has started, where brood-rearing may have commenced.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 1, 1887.

And in thy seed shall all the nations of the earth be blessed, because thou hast obeyed my voice.—GEN. 22: 18.

THE number of our subscribers up to date is 6677, a gain of 253 within the last month. Many thanks.

ANOTHER SUGGESTION IN REGARD TO THE T SUPER.

DR. C. C. MILLER suggests using the loose T tins on top of the sections, as well as beneath, and he says the suggestion was given him by E. S. Armstrong, Jerseyville, Ill. Of course, this arrangement applies only to cases where the tins are loose. When the supers are tiered up it prevents the bees from putting the propolis in the space between the sections. Friend Armstrong suggests further, that with little trouble the whole lot of sections may be reversed if it should be desired so to do.

THE NEW JAPANESE BUCKWHEAT.

WHEN giving the illustration on another page, I omitted to mention that the buckwheat we have received from Peter Henderson is not quite as large as the cut shows it. There may be occasional grains as large as the picture; and, very likely, the grains when they are first harvested are larger than they are now. It is, however, considerably larger than any thing we have ever before had in the line of buckwheat. The European silverhull, advertised last season, is, as you may know, considerably smaller than the old silverhull. The size of the grain alone will make a ready distinction between our older sorts and either of the new ones.

TINKERING WITH BEES IN MARCH.

WE desire to enter a word of caution to some of our beginning bee-keepers. If you find, upon peering under the quilt or burlap of your colonies, that they are in nice compact balls, do not pull them apart; disturb them just as little as possible. If you have reason to believe that the colony is running short of stores, "heft" one end of the frames to see whether they are light in stores. If you find that their supplies are nearly exhausted, give them bee-candy, or, better still, a frame of sealed stores. This frame can be laid on top of the Hill device, just over the cluster. When the weather opens up warm you will have ample opportunity to pull the colony apart; but for three or four weeks yet, let the bees take care of themselves as far as possible.

GREEDINESS IN ADVERTISING.

It is not right, and I am sure it will not pay, dear friends, to declare in your advertisements that your goods are better and cheaper than any other in the world, and to the effect that people will get humbugged if they buy of anybody except you. I have noticed this particularly in our seed-catalogues. A seedsman broadly declares, and even employs pictures, to illustrate what enormous crops everybody secures who buys seeds of him. Then a counter-picture tells how the crops turn out if you purchase of any one *except* the advertiser. Now, I do not like this, even as pleasantly. Say, if you choose, that people who buy of you are generally successful; but don't, I beg of you, try to make it appear that all the world are cheats and liars, with just one exception.

CLOTH INSTEAD OF GLASS FOR HOT-BEDS, COLD-FRAMES, ETC.

A YEAR ago I was not very well pleased with the new water-proof cloth substitute for glass. Since then, however, I have learned to use it, and find that it answers a most excellent purpose when our heavy snowstorms and freezing weather are pretty much over. It must, however, be fastened to frames a good deal like the frames that hold glass, and these frames must be fastened down so they will not be blown away by the wind. After this is done it will keep off frost tolerably well, although not like glass; and as it permits the rain to go right through it, there is no need of handling the sashes, to get the benefit of warm showers. It also permits sufficient air to pass through, so that there is no danger of scorching the plants by the heat of the sun, even if you do not ventilate at all. Add to this, that it gives just about the proper amount of shade for plants newly set out, and it promises to be a great help in starting early plants for any purpose. It also stops the circulation of air sufficiently to keep the air and the soil just moist enough to encourage almost all kinds of vegetable life. It is offered at 3, 6, and 9c per yard, according to the quality, by the U. S. Waterproof Co., 56 South St., New York. The cotton sheets that I experimented with a year ago by painting with boiled linseed oil, are not what is wanted at all. The oil soon makes the cloth rotten, obstructs the sunlight, makes the cloth heavy to handle, etc. The plant-bed muslin mentioned above is the best substitute for glass; and although it is really superior to glass late in the spring, on accounts mentioned above, it can by no means take the place of glass for hot-beds or greenhouses in winter time, even if the manufacturers do advertise that it will.

THE T SUPER.

It is astonishing what an amount of correspondence has come up in regard to T tins and T supers since Ernest and Dr. Miller have been working at it; and, as usual, there seems to be some little feeling as to who first invented it. I do not suppose it will be possible to tell exactly, now; but you will find a picture of them in GLEANINGS for January, 1876, a little more than eleven years ago. I can not tell whether I got the idea from somebody else, or whether it was one of my own notions. But we made them of two pieces of tin soldered together, and also of one piece of tin folded to the proper shape. The crate there illustrated holds 24 sections. The tins were put in so as to form the usual beespaced between the top-bars of the frames and the bottoms of the sections. Perhaps we might mention, right here, that Mr. M. G. Chase, of Whittlessey, Medina Co., O., has been using these supers for the last four years. Our friends will remember that he is the gentleman who produced that nice section comb honey we have had occasion to refer to several times. Mr. C. has used them with the T tins stationary. He has also used, in conjunction with this T super, a wooden queen-excluding honey-board, not only for the purpose of excluding queens, but to prevent the bees from soiling the bottoms of the sections in his T supers. Our foreman, Mr. Warner, has just informed us that he made for Mr. Chase this wooden queen-excluding honey-board something over a year before Mr. Hutchinson described it.

SPECIAL NOTICES.

DISCOUNTS FOR ORDERS RECEIVED DURING THE MONTH OF MARCH.

REMEMBER, there is a discount of 2 per cent on goods of every description, on all orders received during the month of March. After April 1, no discounts for the month in which the order is received.

ORDER EARLY.

THE rush of business is just now coming on, and indications seem to point that we shall have as much or more business than we have had previous seasons. Our customers needing supplies would do well to order early. Bees seem to be wintering well all over the country, and their owners will soon be in need of more hives and fixtures.

PRICE OF WAX.

UNTIL further notice we can pay only 20c in cash, or 23 in trade, for fair quality of beeswax delivered here. The same will be sold to those who desire it, for 25c, fair average quality, or 28c for best selected. When you send us wax, be sure to put your name on the box, so that there will be no trouble in telling to whom to give credit.

FOUNTAIN PUMP, OR SPRINKLER.

In our last issue we gave notice of an advance in the price of these pumps, and an improvement on them. We have about 125 pumps of the old style which we will sell, as long as they last, at the old price. If you want to secure some at the old price, send in your orders early, as these will not last long, and there will be no more of them. The improved pump will not be ready for the market till about March 15.

LABELS FOR FRUIT-TREES, ETC.

We have just invented a process for making these out of our waste white basswood, so that we can furnish labels 3 inches long, $\frac{1}{2}$ inch wide, and $\frac{1}{2}$ inch thick, for only 50 cts. per 1000. Less than 1000 will be at the rate of 10 cents per 100. If wanted by mail, add 3 cts. per 100, or 25 cts. per 1000. These are notched for the wire, but no wire is put on. We

can fit them up with copper wire for 15 cts. per 100, or \$1.00 per 1000 extra.

NEW JOB LOT OF WIRE CLOTH.

We have just received from the manufacturers another lot of green wire cloth, a list of which you will find in our advertising columns. It is all first quality; each piece is nicely wrapped up in paper, and, most important to many of you, there are many small pieces just such as you want. If you wish to secure your choice of sizes you will have to order at once, for these small pieces always go off like hot cakes. The price is $1\frac{1}{2}$ cts. per sq. ft. in whole pieces; 2 cts. per ft. where we have to cut it.

ONE-STORY CHAFF HIVES.

For those who would like to know the prices of the one-story chaff hives, illustrated and described in another column, we append the following; viz.: One-story chaff hives, with half-story cover, as illustrated elsewhere, complete for comb honey, with metal-cornered frames, perforated zinc honey-board, enameled sheet, and a crate of sections with fdn. starters and separators, \$3.00; one-story chaff hive, nailed, painted, and stuffed, no furniture, \$2.00.

ONE-STORY CHAFF-HIVE IN FLAT.

Price of each in flat, \$1.20; price of five in flat, each, \$1.10; price of 25 in flat, each, \$1.00. Above price includes half-story cover. For further particulars, see page 19 of our new price list.

CIRCULARS RECEIVED.

The following price lists have been received at this office:

George E. Hilton, Fremont, Mich., a 4-page list of apianarian supplies.

T. A. Salisbury, Syracuse, N. Y., a 20-page list of apianarian implements.

W. W. Cary, Coleraine, Mass., 30-page list of bees, queens, and general supplies.

J. W. Shaw & Co., Loreauville, Iberia Parish, La., a 4-page list of bees, queens, nuclei, etc.

F. A. Snell, an 18-page list of apianarian supplies; specialty, Snell's Eclipse hives and furniture.

Geo. Wheeler, Norwich, N. Y., a 10-page circular of Simplicity and Langstroth hives, crates, etc.

O. E. Heacock, Barberville, Volusia Co., Fla., a 14-page circular of bees and queens.

Frank Boomhower, Gallupville, N. Y., an 8-page circular (large size) of poultry, and price list of bees and queens.

Smith & Jackson, Fillbury Center, Ontario, Can., a 20-page circular (large size) of bee-supplies; specialty, the Excelsior bee hive.

Dougherty & Wiley, 661 Washington St., Indianapolis, Ind., an 8-page circular, large size, of general supplies, bees, nuclei, hives, etc.

J. D. Goodrich, East Hardwick, Vt., an advertising sheet of general bee-supplies. Mr. Goodrich again sends out this year his sample package of sections and foundation. The latter is very fine.

Thomas Gedyne, La Salle, Ill., a 4-page circular of bee-supplies; specialty the German brown bee. The last-mentioned was printed at this office.

CONVENTION NOTICES.

The St. Joseph Inter-state Bee-keepers' Association will meet in the lecture-room of Unity Church, in St. Joseph, 9th St., between Edmund and Felix, on Wednesday, March 16th, at 2 and 7 P. M. All are invited. E. T. ABBOTT, Sec.
St. Joseph, Mo., Feb. 14, 1887.

10-INCH FOUNDATION-MILL FOR SALE.

A friend at Carson City, Nevada, has one of our improved 10-inch foundation-mills, with dipping-tank and boards, that has *never been used*, he having been taken sick soon after he received it. At our present prices it is worth over \$23.00. We will sell it for him at \$22.00 for the outfit complete. This is a good chance for some Western bee-keeper, who wants a mill, to save quite a sum in the way of freight charges. A. I. ROOT, Medina, Ohio.

PURE ITALIAN BEES FOR SALE.

In superior movable-frame hives. Frames $12\frac{1}{4} \times 12\frac{1}{4}$; eight frames each, at from five to six dollars per colony; or same in light strong shipping-boxes, 75 cts. less. Liberal discount on large lots. 4tfdb. DR. G. W. YOUNG, Lexington, Mo.

CAROLANAN AND ITALIAN QUEENS, BEES AND SUPPLIES.

Also B. Leghorns, P. Rocks, and Raspberries. 5-6-7d Box 34. J. W. CLARK, Clarksburg, Mo.



BEES FOR SALE

COLONIES, Nuclei and Queens

At Living Rates.
Send for Circular and
Price List to

57fd

C. C. VAUGHN,
Columbia, Tenn.



CHOICE ITALIAN QUEENS

AND NUCLEI.

From Imported Mothers; also from the noted Doolittle strain. Send for Circular.

SIMON P. RODDY.

57d

MECHANICSTOWN, FRED CO., MD.



I AM COMING

To tell you that E. Baer sells one piece V-groove basswood Sections at \$2.75 per 100; extra fine, \$3.75 per M. Other supplies correspondingly low. Samples and Circular free. Address

57fd

EZRA BAER, Dixon, Lee Co., Ills.

PRIME & GOVE,

BRISTOL, VERMONT,

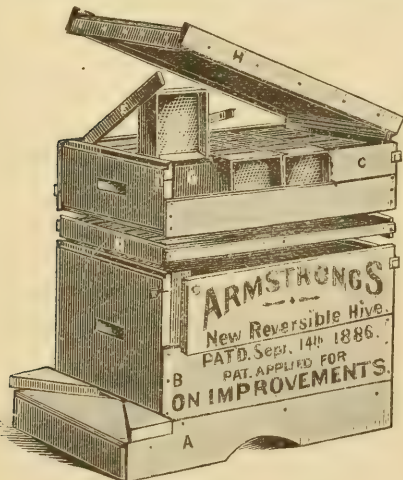
—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples Free.

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ARMSTRONG'S



NEW REVERSIBLE HIVE.

The cheapest, simplest, and most practical hive ever offered to the public. H. D. Cutting, of Clinton, Mich., says: "Let me congratulate you on having such a good hive. Your reversible-section case is perfection itself." Sample hive complete, with paint, \$2.50. Send your name and address, plainly written on a postal card, and receive our 32-page illustrated catalogue free. Address

57fd

E. S. ARMSTRONG, Jerseyville, Ills.

HASTINGS PERFECTION FEEDER.



After a trial of the **PERFECTION** you will use no other, for the following reasons:

1. Prevents Robbing.
2. Bees can not be drowned or chilled in reaching the food.
3. Bees can be fed at all seasons of the year without being disturbed.

Read the following:

The "Perfection Feeder," made by M. E. Hastings, is altogether the best feeder we have yet seen.

It combines all the good points of all the feeders we have ever seen, with none of their bad features. It simply is perfection. We have tried it, and we know we can not give it too high praise.

Editor Bee-Keepers' Magazine.

Send for sample by mail; to hold 4 lbs., 50 c.; 6 lb., 60c. Per doz., 4 lb. feeders, \$3.50; 6 lb., \$4.50.

5d M. E. HASTINGS, NEW-YORK MILLS, ONEIDA CO., N. Y.

The "Gilt Edge" Apiary offers Italian queens from imp. mother; untested, in April and May, \$1.25; untd, in June and after, \$1.00. Tested queens double above price.

A. P. STAIR,
Whitney, St. Clair Co., Ala.

200 COLONIES OF ITALIAN BEES FOR SALE!

50 colonies on special terms. Send for prices.

567d S. D. McLEAN, BOX 190, COLUMBIA, TENN.

Oh tell me! Oh tell me!

And I shall be so glad!

Do you know of some reliable man

Where fine bees may be had —

Gentle and fine Italians,

With industry and business combined,

Those that will work on red clover,

And never are behind?

Oh, yes! my friend; I'll tell you,

And I know they'll fill the bill;

You can get them of F. Boomhower,

And he lives at Gallupville.

He breeds fine poultry as well as fine bees; also ferrets, rabbits, and Jacobin pigeons. Finest flock of laced Wyandottes in America. Send postal for fine illustrated circular. \$50.00 worth of bees and stock to give away. Address

5d F. BOOMHOWER, Gallupville, N. Y.

Bee-Hives, Sections, Section-Cases,

FOUNDATION, AND OTHER APIARIAN SUPPLIES.

Send for our new Circular with description of the

"SUCCESS HIVE,"

Which is fast gaining the favor of many bee-keepers.

Albino Queens and Bees for 1887.

It should be remembered that we are also headquarters for the "Albino Queens." We also breed Select Italians.

Address S. VALENTINE & SONS,

57fd Hagerstown, Wash. Co., Md.

BEES AND QUEENS

READY TO SHIP.

Friends, if you are in need of Italian bees and queens, reared from imported mothers, I can accommodate you at the following low prices: Italian bees, 1/2 lb., 75 cts.; 1 lb., \$1.00; untested queens, \$1.00; tested, \$2.00. Hybrid bees, 1/2 lb., 65 cts.; 1 lb., 90 cts.; Hybrid queens, 75 cts. Prices by the quantity will be sent on application.

5-7-9d W. S. CAUTHEN, Pleasant Hill, S. C.

ITALIAN QUEENS.

Reared from select mothers. Untested, \$1.00;
Tested, \$2.00. **H. G. FRANK,**
5-16db North Manchester, Ind.

Untested Italian Queens,

70 cts. each; in April, \$6.00 per doz. After 2 years of bad health I shall again raise those nice, bright, large and prolific queens whose workers are great honey-gatherers. Those who wish early queens must order now, as first come first served, which I will in no case depart from. All queens mailed at owner's risk.
DR. JOHN M. PRICE,
5d Tampa, Hillsboro Co., Fla.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

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Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city. 20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange, nursery stock of all kinds (evergreens a specialty), for Italian bees, tested queens; nuclei, fdn., apiary supplies, bee-plant seed. Give prices of your goods. My price list free. R. A. LEWIS, Cherokee, Iowa.

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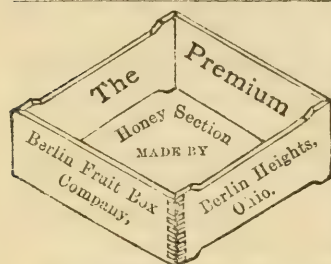
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Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the Intestines just as a person lies held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free.

EGGLESTON TRUSS CO., Chicago, Ill.

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QUEENS. 1887. BEES. QUEENS.

MY ITALIAN BEES AND QUEENS can not be excelled in **BEAUTY** and **WORKING QUALITIES**. I make a specialty of Rearing **FINE BEES AND QUEENS**. Prices Reduced for 1887. Be sure to send for my NEW Catalogue before buying. Address 56d FRANK A. EATON, Bluffton, O.

For Sale, or exchange for Western land, 90 acres, sufficient to increase colonies to 100 double hives—Simplicity hives. An excellent opportunity for a live apiarian. Plenty of white clover and basswood, besides abundance of fruit-bloom. Inventory sent on application. Must be sold soon. 4-5-6d Address S. W. LAKIN, Eureka, Ill.

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—1887—

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DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfid

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—Nothing new since our last report. There is a fair demand from manufacturers for dark honey. And there is a quiet but fair trade for choice comb and extracted clover honey in square glass jars. There is a large supply of all kinds. Extracted honey brings 4@7c in bulk on arrival. Choice comb honey sells at 11@14c in a jobbing way.

Beeswax.—Demand is good. It brings 20@23c for good to choice yellow on arrival.

Mar. 12, 1887.

CHAS. F. MUTH & SON,
Cincinnati, Ohio.

COLUMBUS.—*Honey.*—Market dull; white clover is selling for 14@15c in comb; California, 10@12c; extracted, white clover, 14@15c; California, 10@12c. *Beeswax*, 23@25 in jobbing way.

Mar. 11, 1887.

EARLE CLICKENGER,
117 S. 4th St., Columbus, Ohio.

CHICAGO.—*Honey.*—Market without much change. A limited demand exists in a single case way. Best grades of white clover in 1-lb. sections, 12@13c; not choice, same size, 9@10c. Very light demand for extracted. Prices range 5@6c for best white; dark, 3@4c. *Beeswax*, fair demand at 23@25c.

Mar. 10, 1887.

R. A. BURNETT,
161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—All grades of honey dull and lower, and sales not what they should be at present prices; best white, 10@11c. *Beeswax*, 23c.

Mar. 11, 1887.

M. H. HUNT,
Bell Branch, Mich.

ST. LOUIS.—*Honey.*—Our market is badly overstocked with honey of all kinds. Choice white clover will not bring over 10c in sections. Rough and broken comb 6@8. California, amber, in cans, 4@4½; sage 4½; white clover extracted, cans, 4½@5½; bbls., kegs, etc., 4@4½. Southern honey, bbls., 2½@3½. *Beeswax*, 21. Selected yellow on orders 25c.

Mar. 11, 1887.

W. B. WESTCOTT & Co.,
108 and 110 Market St.

KANSAS CITY.—*Honey.*—There is no change in quotations from our last report. All grades selling slowly.

Mar. 11, 1887.

CLEMONS, CLOON & Co.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

CLEVELAND.—*Honey.*—There is no material change in our market. Best 1-lb. sections, white, sell at 12½@13; second, 11@12. Buckwheat and dark, 9@10. 2-lbs. white, 10@12. Extracted, 5@6.

Mar. 10, 1887.

A. C. KENDEL,
115 Ontario St., Cleveland, O.

BOSTON.—*Honey.*—We have no change in prices to note. Moderate sales on account of bad weather.

Mar. 11, 1887.

BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

PHILADELPHIA.—*Honey.*—Same as last.

Mar. 11, 1887.

PANCOAST & GRIFFITHS,
242 South Front St., Philadelphia, Pa.

NEW YORK.—*Honey.*—There is a liberal demand for comb honey, and stocks are reducing quickly. We are entirely out of white honey. We quote: Dark, and buckwheat, 2-lb. sections 5½@6
1-lb. 6@7

California extracted, white sage, 5@5½

Amber 4½@5

Beeswax, steady at 23@24; receipts increasing.

Mar. 11, 1887.

THURBER, WYLAND & Co.,
New York, N. Y.

FOR SALE.—If any of the friends would like some nice white comb honey in 4½x4½ sections, in Root's 48-lb. shipping-crates, we have 500 lbs. for which we will take 12½c per lb., on board cars.

THOMAS & BENJ. YOUNG, LaSalle, Ill.

ARTHUR TODD, 1910 GERMANTOWN AVE.
PHILADELPHIA, PA.

Dadant Brood Foundation, 40c; for wiring, 45c; thin surplus, 50c. Extra thin, 60c. **BEES, QUEENS, SECTIONS, SUPPLIES GENERALLY.** 5d

FRED'K HOLTKE

**Offers 15 Choice Varieties
of Greenhouse Plants for
Only \$1.00!**

Such as Geraniums, Fuschias, Pansy, Daisy, Alyssums, Primula, Roses, Begonia, etc. All plants will be sent by express unless otherwise ordered, as I can send larger and finer plants this way than by mail. I will send enough **EXTRAS** to cover express charges. If wanted by mail, add 25 cts. for postage, etc. As a **PREMIUM**, I will send one packet of Peter Henderson's choice mixed Victoria Aster seed, something very fine. Satisfaction guaranteed. Nuclei, with untested queens, later on.

6tfdb

Carlstadt, Bergen Co., N. J.

ALSIKE.

Choice new seed at wholesale rates; also 6 choice new strawberry-plants for 6 cts., to introduce my stock.

C. M. GOODSPEED,
2-48d BOX 31, Thorn Hill, Onon. Co., N. Y.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address

6tfdb

HENRY ALLEY, Wenham, Mass.

1887.

BEESWAX

1887.

Made into best Given foundation at reasonable rates, and on short notice. Send in the wax. I have die-books for all the standard frames.

6tfdb JOHN BIRD, Bradford, Chickasaw Co., Iowa.

Fine Premium Italian Bees.

My queens and bees were awarded first premium at the late Chenango Co. Fair. All interested, send for sample of bees, also for my new price list and circular to suit the times, and method of rearing fine queens. Untested queens, \$1.00 through the season. Tested, \$1.50. Mrs. OLIVER COLE,
6d Sherburne, Chenango Co., N. Y.

LOOK HERE!

20 CHOICE GREENHOUSE AND BEDDING PLANTS for only \$1.00 by express, or \$1.10 by mail. **Eggs for hatching**, from leading varieties of land and water fowls; also **BEES** and **QUEENS** very cheap. Write for prices to

6-9db

E. M. HIVELEY, Youngstown, Ohio.

IF YOU ARE WANTING
ITALIAN, HYBRID, or GERMAN BROWN BEES,

Simplicity Hives, or Section Boxes,

Send 2-Cent Stamp for Circular to

6tfdb

Box 653.

THOMAS GEDYE,
La Salle, La Salle Co., Ill.

FOUR-PIECE ONE-POUND

dovetailed sections, smoothed on one side, \$2.50 per 1000. Sample free.

6d

M. A. LOHR, VERMONTVILLE, Eaton Co., MICH.

HAVE YOUR WAX WORKED NOW,

By C. H. McFaddin, cheap, first-class fdu., on Vandervort Mills. **PURE ITALIAN BEES, QUEENS, and NUCLEI** in Season. 6-7d
Box 35, Clarksburg, Moniteau Co., Mo.



Vol. XV.

MARCH 15, 1887.

No. 6

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DISTURBING BEES IN WINTER.

FRIEND DOOLITTLE PROVES PRETTY CONCLUSIVELY THAT IT DOES NOT ALWAYS DO HARM.

OF late I have been wondering if we as bee-keepers do not talk and write a great deal that we really know nothing about, only as we have accepted it from the thoughts of others. All are aware, that we have been repeatedly told that bees should never be disturbed in winter unless they could fly at the time such disturbance was made; for, if handled or moved in cold weather, much harm and loss would occur as a result. As my mind goes back over the past, I recall these instances which go to prove that the above theory does not always hold true.

In the winter of 1869-'70 I purchased one colony of bees out of a lot of 30, from a neighbor living two miles distant. This was in February, and the bees had had no fly during all the winter previous. The roads were very rough at the time, but I was not content to leave the purchased colony where it stood, so I brought it home; and after letting it stand a few hours to quiet down I set it in the cellar. It came through to the working season in the best possible condition, not having a chance to fly till about the middle of April, while every one of the 29 colonies left died before the first of May.

Again, in 1875, about the middle of December, I moved my whole apiary from my former place of residence to where I now am, a distance of 75 rods, placing a part in the cellar, and leaving a part outdoors; and at no time have I had my bees winter better. Then the readers of GLEANINGS will remember the experiments I conducted two winters ago to get the temperature of the center of a clus-

ter of bees, during which process the colony experimented upon was frequently disturbed, and many bees were lost by being pulled out on the thermometer and otherwise, flying out during the disturbance consequent upon the many experiments; yet this colony, contrary to my expectations, came through in much better condition than many others not disturbed at all, and was the second one to swarm the next season, being third best of the whole apiary, as to honey-production.

Again, wishing to know more about the matter of disturbing bees in winter, and to ascertain other facts as well, if possible, I have this winter handled a colony of bees with the mercury at 3° below the freezing-point, taking out all the frames, and examining them the same as I would in summer. About the 25th of January I found I had two colonies that were beginning to get uneasy, and show signs of bee-diarrhea. Knowing that I must lose them I resolved upon opening one of the hives as soon as a moderate day came without wind, to see if I could find out the cause of the trouble. Such a day did not occur till the fore part of February, as our winter has been remarkable for high winds. I now proceeded to the hive, and, upon raising one corner of the quilt, I found the bees ready to boil out and fly. To overcome this I put the nozzle of the smoker in under the quilt and gave a few puffs which drove them back, and, by keeping smoke upon them I soon had the quilt off, with the loss of very few bees (perhaps half a dozen), for all which took wing were soon on their backs in the snow. Before touching the frames I waited a moment or two; and as fast as the bees from the inside of the cluster would come up to see what the trouble was, or to take wing, I would drive them back with smoke. They soon gave up trying to fly, when I proceeded

to handle them as I pleased, putting them all back as before, except that I set a frame of honey, from the outside of the hive, on each side, near the bees, as a precaution against starving. I also cleared the bottom-board of dead bees and dirt. It has been now nearly a month since this was done, and an examination to-day shows bees in fine ranges of comb in a semi-quiet state, while the other colony, not disturbed, are all dead, except a few bees in one space; so it would seem that the handling of this colony of bees proved beneficial rather than the reverse.

Now, do not understand that I recommend a general handling or disturbing of bees in winter, for I do not; but hereafter, if I think a benefit can be made to a colony by handling it, either to keep it from starving or otherwise, I shall not refrain from so doing for fear that I shall make matters worse. In all such departures from the regular beaten path we should always go slow, always using but a very small part of the apiary for experiment; and then, if wrong, no great loss can result.

Bees have had no chance of flying here since the first Wednesday in November, and are beginning to suffer from their long confinement, about one colony in five out of doors showing signs of uneasiness. Those in the cellar are in perfect condition.

Borodino, N. Y., Feb. 28, 1887. G. M. DOOLITTLE.

I am not surprised, friend D.; in fact, I presume many of you remember the experiment I have often mentioned, of bumping a hive every day all winter long, to see if the bees were alive. Of course, they were kept in the cellar, and they came out in the spring stronger than when put away. I think that the most of us are a good deal inclined to jump at conclusions, and to get notions in our heads.

LEGISLATION IN REGARD TO BEE CULTURE.

AND THE KIND OF LEGISLATION THAT MIGHT NOT PLEASE US.

WE extract the following from the *American Bee Journal* of Feb. 23:

That legislation which we mentioned last week as being sought to be made in Michigan is stirring up the bee-men there. Mr. S. Shoup, of Coloma, Mich., has sent us a copy of the bill. It was introduced by Mr. McCormick, and recommended by the Committee on Roads and Bridges. It reads as follows:

A bill to prohibit the keeping of bees in large quantities near any public highway or dwelling-house not owned or occupied by the keeper or owner of such bees.

SECTION 1. *The People of the State of Michigan enact,* That it shall not be lawful for any person to keep to exceed five stands of bees within 25 rods of any public highway, or less than 25 rods of any dwelling-house not occupied by such keeper or owner of bees.

SEC. 2. Every keeper or owner of bees neglecting or refusing to comply with the provisions of the preceding section after due service of written notice, shall be subject to a penalty of \$5 for each day's neglect or refusal, which may be enforced and collected before any court of competent jurisdiction.

Mr. Geo. E. Hilton, President of the Michigan State Bee-Keepers' Association, writes thus:

This bill, should it pass, would be a great calamity to our pursuit, and to the State as well. As it is almost a necessity to have our bees reasonably near both, and it simply means the extinction of the

honey-bee, and a terrible calamity to the horticulturist, I feel it my duty to urge every bee-keeper in the State to write to their Senators and Representatives, asking their assistance in defeating any such bill. Just deluge them with letters. Use the best arguments at your command to prove that our rights are being infringed upon, and that we are alive to our interests, and demand our rights.

Friend Newman suggests that Prof. Cook is the man to look after this, as he is near to the State capital, and as his name itself would have sufficient weight to cause the matter to be carefully looked into.

Since the above was in type we find the following from the pen of Prof. Cook, in the *American Bee Journal*:

The "Bill to wipe apiculture out of Michigan" (that is my title to it) will never pass, and will probably never be called up. Michigan aims to foster her important industries, and not to throttle them. Such a bill could not get a dozen votes in the Michigan Legislature. Still, I hope every bee-keeper in Michigan will write to Hon. Mr. McCormick, Lansing, Mich., urging him to withdraw the bill. It will serve to enlighten him and others as to the status of this business.

Later.—The following comes to hand from friend Bingham, which settles the matter.

STATE OF MICHIGAN,
REPRESENTATIVE HALL.

T. F. Bingham, Esq.:

Yours in regard to House Bill No. 89, relative to keeping of bees, is received. In reply, allow me to say the bill came up yesterday in the general assembly, and I had it tabled. It will not be called up again. I have no intention of legislating the bee-business out of the State. The bill was introduced at the request of a gentleman who has been bothered, I presume, by some one's bees.

Lansing, March 5, 1887. JAS. W. MCCORMICK.

GILBERT M. DOOLITTLE.

A SHORT SKETCH OF HIM BY A NEIGHBOR.

G. M. DOOLITTLE was born April 14, 1846, near his present location, in the town of Spafford, Onondaga Co., New York. His parents were natives of Connecticut, and moved to this State a few years before he was born; hence the thoroughness, energy, and activity of the "Yankee" are largely manifested in the subject of this sketch. From his earliest youth Mr. D. has been an admirer of the busy bee, taking great interest in them when kept by his father. Later on, nearly all the bees in this section of country perished with foul brood, so that from 1856 to 1862 a hive of bees was a rarity. After this the disease seemed to abate, so that, in 1868, bees were quite common again.

As 1868 was a splendid honey season, bee-talk was rife in this locality, which again brought to life old ambitions which had been crushed out by the former loss by disease among the bees, so that the spring of 1869 found Mr. D. with two colonies of bees of his own, as the starting-point to his present apiary. Wishing to know for himself all of the minutiae of this (to him) interesting pursuit, he procured nearly all the bee-books of that day and subscribed for the bee-papers. As his ambition led him toward the practical side of bee-keeping, Quinby's *Mysteries of Bee-Keeping Explained* was his favorite, the pages of which were as familiar to him as a nursery rhyme. His intense desire to learn and investigate the bees in every particular has been such that he has dreamed of them at night, and thought of them in his working hours to an almost absorbing extent, and to-day he is

still a student, believing that there are many unexplored regions, and much room for the deepest thought, even on the practical part of this pursuit.

In the first few years of his apicultural study, Elisha Gallup, then living in Iowa, gave him by letter much practical instruction, which, together with Gallup's articles in the different papers of that time, so grew into his life that he went by the name of "Gallup" among bee-keepers about him for several years; and to-day he is often heard to say that there never has to his mind been a greater man in the realm of bee-keeping than E. Gallup. Gallup in his private letters laid great stress on good queens, claiming that around the queen centered all there was in bee-keeping, which has caused the subject of this sketch to study along

for Mr. D. has never done "any thing in a corner," but, on the contrary, has given all of his successes and reverses, together with the most of his plans and methods, to the public as freely as he would to his family, always realizing that it was largely through the philanthropy of others that he has attained the success which he has achieved. N.

I will add to the above, that we have few bee-keepers now in the world who are as conversant with the contents of all of our bee-books and bee-journals as friend Doolittle is. A great many go into the bee-business, and sooner or later drop it and turn their attention to something else. Even our energetic and enthusiastic friend E. Gallup, mentioned above, is now doing



G. M. DOOLITTLE, BORODINO, N. Y.

the line of queen-rearing to a much larger extent than any other part of this interesting pursuit, and it is believed by him that much of his success as a honey-producer has come from this, and his ever-anxious care to get the hive filled with brood at such a time that there would be multitudes of field-bees at the opening of the honey-harvest.

In 1870 Mr. D. wrote his first article for publication, at the request of W. G. Church, editor of the *Apiculturist and Home Circle*, published at Mexico, Missouri. Although a poor penman and scholar, he received many encouraging words from Mr. Church regarding his articles, which gave him confidence, so that to-day there are few who write more largely about the "little busy bee" than he. The rest of his bee-keeping life is familiar to all the readers of *GLEANINGS* and other bee-papers,

little or nothing with bees, if I am rightly informed. This is, in some respects, unfortunate, because there are so few perfectly familiar with what has been already done. As an illustration, our boys here in the office, Ernest and John, are perhaps better posted in regard to hives, etc., just now, than I am; but they know little or nothing about the experiments that were made, and that our bee-journals were filled with, some 15 or 20 years ago. Friend Doolittle has stuck right to the bees unflinchingly in all these years. If somebody commences to make a great ado about his new invention that is going to revolutionize, etc., friend Doolittle can say to him, "My friend, this matter was discussed and talked over and experimented with more than ten years

ago; in fact, we had so much of it that the editor shut down on us, saying the subject was exhausted." Very likely our young inventor may demand the proof, and friend Doolittle is the one who is able to take down his old back volumes and put his finger right on the spot. This gives him a power and ability possessed by few of our present writers. May God spare him many years yet, to guide and direct the new generations who are constantly coming on to the stage, and—wanting to know, you know.

TIME OF TAKING BEES OUT OF THE CELLAR.

A FEW TIMELY HINTS FOR THOSE WHO HAVE BEES IN THE CELLAR.

I THINK I never regretted taking bees out of the cellar in the spring too *late*, but I have regretted taking them out too *early*, more than once. If bees appear a little uneasy, and a fine day comes, there is a strong temptation to hurry them out, even if there is time for considerable cold weather. In 1872 I took out my bees Feb. 22, in bad condition, about half of them alive. They had been fed late, which, perhaps, was at the bottom of the trouble. They flew a little, but it was not warm enough for a general cleaning, and soon after there came a cold storm with snow a foot deep, and by April I had only two colonies left out of the original 50. I suspect more would have lived if they had been left in a month or two longer.

Some have expressed the opinion, that bees kept in the cellar through the winter are more tender in the spring than those left out all winter. Be that as it may, I think I would rather have them out all winter than to take them out of the cellar in February, in this locality. As to taking them out for a fly in winter, and putting them back in the cellar again, I do not know; but I rather think I would take the chance of their staying. In the winter of 1885-'6, some colonies became afflicted with diarrhea, and began to spot the fronts of their hives. I suspected they had been too cold, as the fires had been rather low. I then raised the temperature of the cellar, and the disease made no further progress. This is the only instance of the kind I ever experienced, and there is a possibility of some mistake; but if I ever see diarrhea in the cellar again I shall try better fires. If I had no stoves in my cellar I think I should try hot stones, jugs of hot water corked tight, or something of the kind. Of course, I should not use hot coals or any thing that would make any steam, smoke, or gas, or any thing that would make the air less pure.

Of late years I have taken the blooming of the soft maple as indicating the proper time to take out bees. Please bear in mind, that what may be all right in one climate or locality may be all wrong in another. Well, the maples have helped to keep me straight. Sometimes a bright warm day comes, and I want, oh so much! to see the bees all out flying; but if the soft maples are not yet out, I manage to hold on, and generally find it would have been a bad job if I had yielded to the temptation to take them out earlier. On two separate occasions I think the soft maples made a mistake in opening out too early. One year they started out in bloom, and

then some cold weather came, froze up the blossoms, and I think little or no nectar was obtained from them. In the spring of 1886 I felt especially anxious to get my bees out early. Sickness and death had prevented their getting the attention they should have had the previous fall, and some were short of stores. Just which they were I did not know, and I thought if I overhauled them in the cellar to find out which needed feeding I might injure the great majority which needed no feeding, and so make more loss than gain. So I watched the maples closely, and on March 26 found one putting forth blossoms. It was unusually early, and it did not look like settled warm weather; but there were the maple-blossoms, and I didn't want any bees to starve in the cellar, so out they came. If I remember rightly there were about 12 dead out of the 340 put in in the fall. A snowstorm came and for days they were frozen in. Then a bright sun, and, for all of my shading the entrances, many were lost in the snow. By the time they all got through dying off, only 226 were left, and they were by no means in fine shape. This occurrence is entirely too recent for me to feel any great pride in relating it, but the relation may do some good. The bees were in good condition in the cellar; and if I had it to do over again I would let them take their chance of starving, for at most I do not think many would have starved; and if left in the cellar till warm weather, I think many more would have pulled through all right. So I shall no longer put implicit trust in soft maples—at any rate, not in the blooming of a single tree, but take somewhat into account the date and general appearance of the weather. Although this one tree was in bloom March 26, it was many days before the general blooming of soft maples; and if I had waited for this they might have been all right. Since 1872 my bees have left the cellar at the following dates:

1873, March 31.	1880, March 31.
1874, " 30.	1881, April 22.
1875, April 6.	1882, March 30.
1876, " 17.	1883, April 6.
1877, " 11.	1884, March 29.
1878, March 12.	1885, April 8.
1879, April 1.	1886, March 26.

As I have already intimated, some of these dates would have been better if later.

Marengo, Ill., Mar. 2, 1887.

C. C. MILLER.

I think you are right, friend M., in deciding that too late is better than too early in putting the bees outdoors. Almost every bee-keeper, especially an enthusiastic one, is anxious to get things going in the spring, and one has to live until he is forty or fifty years of age before he learns that the weather in March and April is very uncertain. I have gone through the same experience in risking plants out over night; but I think I have never regretted that I protected them too well. Our bees are, however, always prepared for outdoor wintering, and therefore are outdoors all winter long; but I have to check the boys continually about taking off the chaff cushions too early. They complain that it is too much fuss and bother every time they wish to open a hive; but my impression is, that it pays a good per cent to have them well protected when these sudden cold storms take us unawares.

THE HOME OF THE HONEY-BEES FOR 1887.

A GLIMPSE INSIDE AT THE WORKERS.

FROM time to time we have given our friends notice of the improvements we have been making. We have recently, as you know, erected another brick building, 96x44, two stories and a basement, to accommodate the increase of business. We presume all the readers of GLEANINGS will be pleased to take a view of the Home of the Honey-Bees, where from 15,000 to 20,000 hives, and millions of sections, are made and shipped annually.

That you may get a better view of the place where the busy workers are laboring in the interest of apiculture, we will get off a little way on an elevated spot and look down upon the Home of the Honey-Bees, of which the floor room aggregates an acre or more. Our view, then, is as seen on the next page. That we might have a good view of the surroundings, we told our engravers to spare neither pains nor expense in the execution of the picture, and our readers are to judge for themselves. During our busy season things look very much as in the engraving. There is, in the left, a new freight depot where all our freight is put, ready to be placed on the cars. This building was erected by the railroad company largely because the increase of our business demanded it. We also load heavy shipments directly on to box cars run down on our side-track, right about where the locomotive is standing. It is just pulling out some flat cars which had been loaded with lumber for hives. The main building in the foreground you will recognize as the main factory that we have previously shown our readers. The structure just below is our new building. There all our sections, crates, hives, etc., are cut out by automatic machinery, and there, too, all our tinwork is done. Just over the main building you see our barn and the top of the house apiary, the former shown on page 984, GLEANINGS for Dec. 15, 1886.

We will suppose, dear reader, that you have come for the purpose of making the Home of the Honey-Bees a visit. You know that our bee-friends are always welcome, and, entering the main building, you pass up the stairway into the main office. We will suppose that you have come, fortunately, just when we have a little leisure. After a little preliminary we begin by describing the room we first find ourselves in, which is our office, 40x60, where all our correspondence is conducted. Here are from twelve to fifteen clerks at work, busily writing. Yonder is the book-keeping department, where two or three ladies are constantly at work on accounts. One of them has the large index-book that contains the names of over 20,000 different people with whom we have had deal. This book alone cost over \$75.00. With so many names, do you wonder that once in a great while our girls get the same man on two different pages—that is, they have two accounts with the same person, without knowing it? The consequence is, he may get a statement, say-

ing there is so much *due him*; and then a few days later on, another to the effect that he is *owing us*; and this time he gets mad; and when the girls get a "blowing-up" they hunt the matter up and find where the trouble is.

At the right of the book-keeper is the lady who opens the letters and counts the cash. This is one of the most important posts in our business, for it requires some one who can so apply the mind to the work that nothing that is going on can draw away the least attention. When somebody says he put so much money in a letter, and the clerk who opens the mail declares there was a different amount, or no money at all, there is a chance for a quarrel, I tell you. Now, if you will stop a moment I think I can explain to you right here why the friend who sends the money is much more liable to be mistaken than the clerk who opens the letters. Now, if you don't wait until I explain, you will be inclined to say that one is just as liable to be mistaken as the other, but you are wrong. See here: Right under her hand is a little drawer. In this drawer is a printed postal card. This postal card reads, "My friend, your letter, saying, 'Inclosed find 75 cts.,' is now in my hands, and there is positively only 25 cts. in it instead of 75. Both the letter and the envelope are now in my hands while I write this card, and there is no possibility of a mistake."

The card does not read *exactly* like the above, but it is the same in effect. If I am present, the clerk often calls me to witness that there is no more money, no postage-stamps, and nothing inside of the envelope, or stuck on the other side of the letter, or dropped out on the desk. The desk is a large one, arranged expressly to avoid the possibility of any thing being dropped; and the clerk who presides makes it her every-day business to watch over every copper with the utmost care. In fact, she has nothing to do but to look after this one thing that often makes so much hard feeling. Most of the time, it is true, the friend who receives the card writes back, saying that he trusted it to his wife or neighbor, or somebody else, and they put in the 25 cents in stamps, and brought back the 75 cents in change, instead of doing the reverse, or something of that sort. At other times the friend who sent the money declares positively there was no such thing as a mistake on his part, and we have to settle it as best we can.

We must get along, however; for if we stop to talk about the other clerks' work as we have this one, it will take a good while.

There is GLEANINGS desk; here, the mailing-desk; there, a stenographer's desk; and just back of him is the letter-press. There, again, is another stenographer. By the way, we have now three shorthand writers, with two type-writers and one caligraph, and the whole are kept pretty busy, I tell you, and even then some of our friends feel hard because our answers are so brief and unsatisfactory. I assure you it is a pleasure, though, to be able to have every word you say in answer written down, especially when you have had experience by being overburdened with business correspondence. Here is a

queen-desk, and over in the corner is the express-desk. You see, dear friends, we are doing all we can to answer all your correspondence, and to attend to all necessary business with you. Every thing is arranged in departments, and every thing works systematically. Each clerk has her particular duties and her special instructions.

We will now pass into the paper-room, where from six to a dozen girls are at work folding the papers and binding the A B C book. From this room we pass into the paper-cutter room, where GLEANINGS and all our A B C books are trimmed. We next enter a long hall where the names of all our subscribers are standing in type. Passing out the east end we come into the general job and composing room; going further, and turning to the right, we enter another room also a composing-room. At the end of said room is still another stenographer (our proof-reader) working busily at his post. He is no other than W. P. Root, with whom our friends are now perhaps partially acquainted.

We will next enter the sample-room, where samples of nearly all our apian supplies are kept in stock. After looking over the various implements, and explaining their use to our bee-friends, we next enter the smoker-room, in which from 10,000 to 18,000 smokers are put together annually. There are other rooms on this floor, but we will not stop to go through them. We pass down the stairway, and enter one of our large packing-rooms which is 70x40 ft., and formerly was the old saw-room. Here a large portion of the goods are packed, ready for shipment, by experienced men. We next pass into another packing-room, where we find Bert, "the clerk who never makes a mistake," marking off goods for a customer. The boxes and packages are stacked one upon the other, and it is almost impossible for us to get through. Near this is the express-room, in which all the goods are put up that go by express. We next enter the press-room, where GLEANINGS, our price list, and the A B C book are printed. The press is one of the best Cottrell & Babcock makes. It not only runs nearly every day in the year, but sometimes all night; and the number of impressions it makes annually, aggregate about 3,000,000.

We will retrace our steps, edge around the boxes, and pass down into the machine-room. The first thing that greets our ears is the perforating machine which "chanks, chanks" at the shining sheets of zinc. Here is an iron-planer and three or four lathes. In this room our repairing is done, the making of mandrels and comb-foundation mills, besides other iron work connected with the apian-supply business. Let us stop a moment and look at the comb-mills which are in process of manufacture. The man with the glasses stands watching the machine, with a lever in each hand, while the cog-wheels and knives obey his will. We can not stop longer. We enter the boiler-room where all the steam is supplied for all heating purposes, and for propelling the machinery. There are two automatic feed-pipes for conducting the sawdust, shavings,

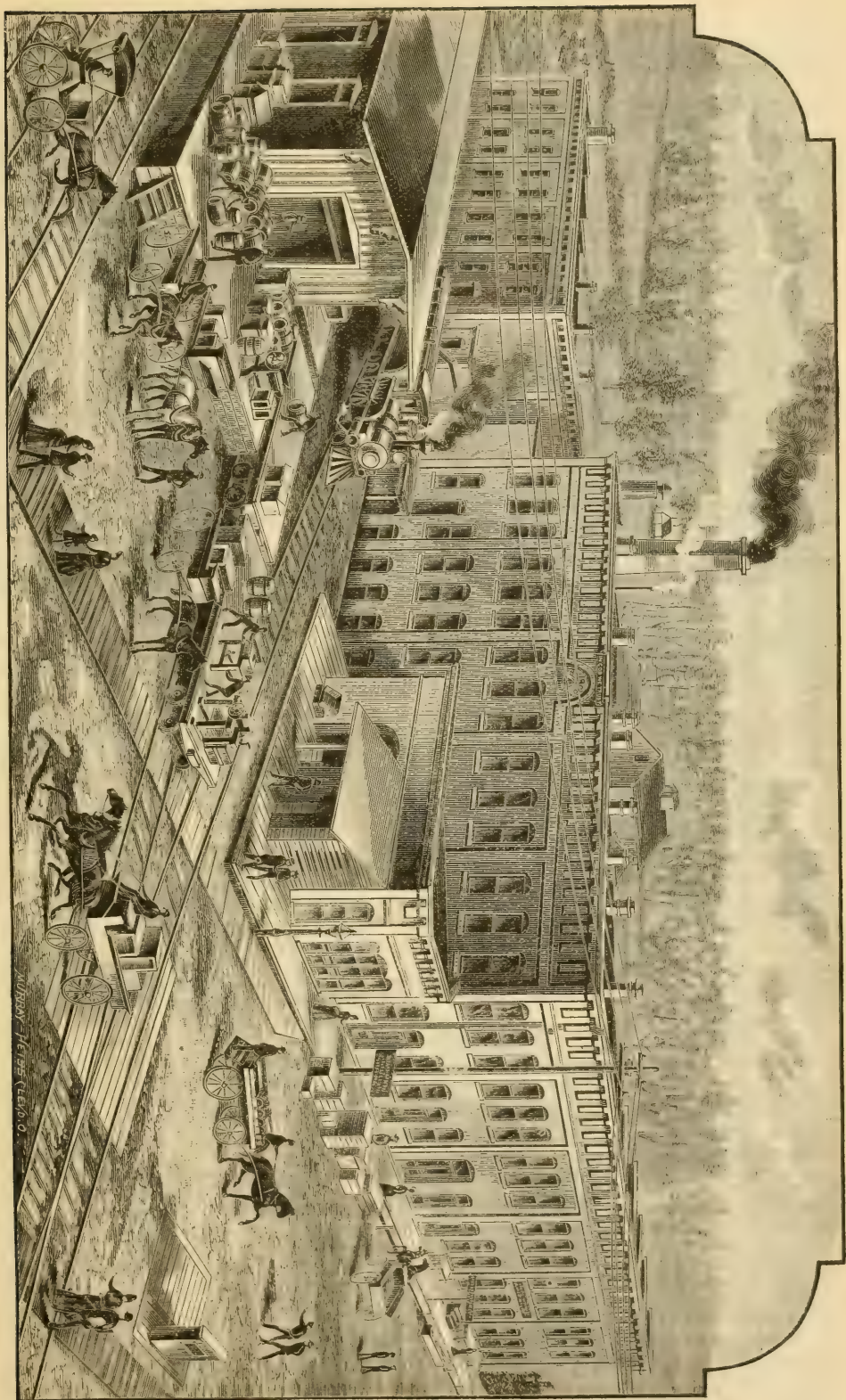
and sticks directly from the wood-working machinery into the boiler-furnace; and all that is necessary for the fireman to do is to shovel in coal. While running the two planers or the cutter-heads, the boiler is nearly self-feeding.

We now open the door, and pass back again into the machine-room. The first thing that confronts us is our deep well-pump, 96 feet deep, supplying all the water necessary for propelling the machinery, and heating. We pass into the wax-room, where are from 10 to 15 girls and young men busily at work making foundation. Here is a couple of dipping-tanks, from which three or four girls are dipping wax into long sheets. At our left are two or three comb-mills running out the thin foundation. At our right are two machines running out heavy foundation. The two latter are propelled by steam. The girls complained last year about its being hard to turn the rolls by hand; but now we have called our big engine to assist; and I tell you, friends, it is a great help indeed. At the end of the wax-room is a man making boxes, and boxing foundation.

We will now go through the underground passageway where we have our underground railway. Here you will find stacks and stacks of goods. We follow the track until we come to what was originally our old tin-room. This is now used exclusively for the storage of counter goods and seeds. We pass up the stairway, and, lo! we are in the counter store, pretty nearly back to where we started. Here you will find two or three ladies keeping the counters filled as packers and customers take away the goods. You exclaim, "How is it that you can furnish such nice-looking goods for such a small sum of money?" It does seem incredible, I know; but the secret is in knowing where to get goods at a low cost, and in large quantities. A man was in Saturday to look after the working of some of the new machinery his house had put in. He went into the counter store and picked up an adjustable wrench. Pretty soon he came to me, saying, "Mr. Root, what does it mean, that you sell a good-sized, well-made adjustable wrench like this for only 25 cts.? Do you really steal them?"

"Why, no, my friend, we don't steal them, but we do this: We write to some large factory, and say, 'Gentlemen, how low will you make us five gross of eight-inch wrenches, providing we will give the order away ahead, so you can make them at your leisure—during a dull spell, for instance?' They reply, that if they can take their own time, and make, say, a part of them at one time and a part at another, they will do so and so, and that is the way we get low prices on many things." But, to return.

Thus far we have just gone through only the main building. We will now retrace our steps and pass through the packing-rooms until we come out of the door seen just at the right of the locomotive going up the track. We pass along this elevated sidewalk and open a door at the end of the new building. Here we are greeted by the deafening roar of humming machinery. The



THE HOME OF THE HONEY-BEES IN 1887.

MURRAY & CO. N.Y.

first machine that we see is the automatic section-machine; and at every zip, zip, zip, a section drops down and is picked up by a boy who packs them in the boxes. There are about 20 machines in this room, but we will not go into details, as we propose ere long to give our readers a picture of it. We now pass upstairs and enter the tin room, 44 x 96. Here we are greeted by the din of tinner's mallets. Here are two men working at the insides of extractors. Further along, the cans are being made. There is a pile of wax-extractors, comb buckets, honey-pails, and all sorts of tin honey-receptacles in process of manufacture. We retrace our steps, and pass down into the basement. Here is a great amount of belting and shafting, all in full motion. There is a 52-in. exhaust-fan, which is connected with large pipes. These pipes are connected with smaller ones communicating with the different saw-tables. This exhaust-fan, or blower, carries away all the shavings, sawdust, and little sticks, and blows them through a large main pipe, and from this building (through a pipe as seen between the two buildings just below the locomotive smoke) directly into the shaving-vault. The sawdust is then conducted by means of another pipe directly into the boiler-furnace, which we have before described. Now, right opposite the exhaust-fan is the blower for blowing cold air through a coil of steam-pipes. The cold air is thus heated and carried right up into the saw-room and tin-room, thus giving the men an abundance of fresh air.

We pass from this shaft-room directly into the engine-room. You will exclaim, "That is such a little thing to do such a large amount of work!" I reply, "The engine looks small, but it represents 90 horsepower!" After looking at the engine, we pass through an underground passageway leading to the main building into our greenhouse.

There is lettuce, radish, pie-plant, celery-plants, etc., growing as if it were warm summer weather. Hark! what do we hear? It is the peep of young chickens. What are they for? Why, they are our bug-catchers. We know of nothing better to keep the bugs off the lettuce. Here we finish our trip through the buildings.

Now, friends, I do not know how it seems to you, but when I take a look at this scene of activity it seems to me almost as if it could not be reality. It was only a very short time ago that I was a blundering boy—yes, a boy who cried over his plans because they did not work just as he had figured out they ought to work. When this blundering boy, however, stopped working for himself, and began working for the kingdom of God, and his glory, giving employment to those who seemed to be in sad need of it, etc., then, by some strange process, success seemed to crown his humble efforts. It seemed as if some great and mighty power had the control and management; and who shall say that such has not been the case while the little motto still remains, cut in the solid sandstone right over the arch, in the center of the main building—"In God we trust"?

OUR P. BENSON LETTER.

MOER BEEKEEPIN AS A OCKYOUPASHEN.

IF beekeepin shood be confind to enny I class it hed ot be wimmen. No other calling in life is so suitful for beekeepin as wimmen. Thay air so genteel in thair moovments as to subdoo the moast vishus hybirds.

Next to wimmen is milliners and dress maikers, whitche is the moast appropri8 of all to keep bees, bekoz for the resaon thay can raise thair oan wax to wax the thred to so with. Also she kan so onto a bunnit while watchin for swarms.



BEE-KEEPIN AS A OCKYOUPASHEN FOR MILLYNERS.

A miller is espeshelly sooted to keep bees, bekoz he ken maik his oan flour and meel to feed the bees, and save them the trubbel of going out to gether poland off the blossums.

A carpenter hed ot to keep bees moar than enny-buddy els in the hoal wirl. It woont cost him nuthin for makin hives.

A still moar proper pirsion to keep bees is a mar-rid man or wooman. Thay have plenty of children to eet the hunny.

In no way is enny I in sitch good condishen to keep bees as a old batcheller or a old maid. Thay hev no children around in the way to be took care of when thay want to taik up a skep of bees and get the hunny from them. Then too its a good plan for them to get a good start in beekeepin, for if thay shood ever git married, it woud be reel handy to hev the children a round when the bees swarm, to yell & holler and pound on tin pans.

No class of people ken so well keep bees as conducters, brakemen and sitch, onto a ralerode. Thay need sum employment to taik up thair spair time whitche doant require enny at10shun, and bees talks cair of thairselves, and doant need enny work. Besides if he bies a swarm of bees he ken taik it home on the baggige car for nuthing.

Lawyers is pre-emant for keepin bees. When bizness is kinda dull bees helps to maik things lively, and he ken put a swarm clost up to the side-work soze to sting people agoin along and from whitche he ken eezy git up a lawsoot to maik him bizzness.

A irishman is the proper pirsion to keep bees for his pipe is always a goin and reddey to smोक the bees.

A woshierwooman is also the right I, for she ken rays her own beeswax to greeze her flat ierns to iern shurts.

The yung is good to keep bees, for thay kan lurn habbits of gittin around lively, and the oald is good for thay ken learn to cluster quiet at the door a doin nothin.

Hents it is seen that all classes and condishens hed ot to keep bees without regard to race, kuller, or prevus kondishen of servitood.

P. BENSON, A. B. S.

TEN-CENT SECTIONS OF HONEY.

A PROTEST AGAINST THEM.

FRIEND NOVICE:—I wish to raise my voice in an humble but earnest protest against the new departure. There is already an evil in this line which works more mischief than you imagine. It is this catering to the demands of the dishonest grocer who wishes to sell 12 oz. for a pound, either that he may get more profit or that he may appear to undersell his honest neighbor. The closer the bee-keeper sticks to the fundamental truth, that it takes 16 oz. to make a pound, the more successful will he be in increasing the sales of honey, and in laying a sure foundation for a steady demand in the years to come. Two conditions are wanting to make the ten-cent comb a success. One is, that all honey be of equal value; and the other, that all bee-keepers and dealers be strictly honest. To the honest bee-keeper I can see only evil in this, the limit being in the wrong direction. The grocer must get a certain number of combs for a certain sum of money, which puts a limit to the price of the finest grades of honey which the bee-keeper produces. In the other direction there is no limit, the greedy or dishonest grocer demanding more and more ten-cent combs for a given sum of money, and the producer tries to please him by giving as much surface as possible; and if he be of the same spirit as the dealer, he puts in all the wood he possibly can. The tendency all is to give as little honey as possible for the ten cents; and I fear that, in two or three years, ten-cent combs of honey can be found so small that the gentleman of Albany could "clean up the platter" at one meal, without the help of the family. Notice, friend Novice, he suggests 10 or 11 oz., while you suggest 8 or 9. Some one else will suggest 5 or 6. Where is the limit? When you make a package of comb honey less than a pound, I think you simply increase the cost to no purpose. Where a pound of comb honey can be retailed for 16 or 18 cts., or even 20, there is no need of a smaller package. Did you figure up how much the bee-keepers who sent ten-cent combs to Albany received per pound for their honey? Allowing that 100 lbs. net would make 150 combs, say the grocer pays 8 cts., making \$12.00; deduct commission, 60 cts.; expressage and drayage, not less than 75 cts.; cost of 150 frames and case, 60 cts., leaving a balance of \$10.05 for 100 lbs. net of honey—just about equal to getting 9½ cts. for 1-lb. sections, weighing the frame with the honey. Is not this making undue haste to reduce the price?

Wouldn't it be better to go slow in this matter, and treat the story as a huge joke (which was probably intended only as such), that one man, without any special effort, sold, in a little over half a season, in the city of Albany, nearly if not quite a quarter of a million, or between 60 and 80 tons, of a size of comb which seemed to be new, to a convention of York-State bee-men? And before you settle the matter, ask for the opinion of some of the bee-men who sent the quarter of a million of ten-cent combs to Albany during the past six months. In the one-pound sections which you send out, the frame is so light that the consumer does not object to having the frame weighed with the honey; but having the idea firmly implanted in their minds that honey should be sold by weight, they do demand, as they have a right to demand, that when they pay for a

pound that at least the honey and the frame weigh a full pound.

During this winter I have sold several tons of California honey in the comb to the best grocers of this city and Pittsburgh; and although the combs average nearly 2 lbs. each, it sells readily. Two things they do require: That the quality be good, and that the comb and frame weigh all they pay for. I do not mean that there is no preference given to the 1-lb. section; for my experience is, that the one-pound package does command in this market just about one cent per pound more than the same grade of honey in a 2-lb. package. When you collectively, as bee-keepers, have the power to say how many ounces the ten-cent comb shall weigh (net weight of honey), and can compel every producer to live up to your law, then, I say, go ahead with the ten-cent comb; but this being the freest country in the civilized world for the man who wishes to defraud his neighbor in weights and measures, you will find neither profit nor satisfaction in the novelty proposed. The class who buy for every meal something to spread on their bread, and who demand a ten-cent comb, is the class whose trade you can never get to any extent unless you are prepared to compete in price with the manufacturers of truck which they call jelly, and which can be retailed at 5 or 6 cts. per lb. M. H. TWEEDE.

Allegheny City, Pa., Feb. 24, 1887.

Friend T., you have presented an excellent paper on this side, stating the objections to the ten-cent package, but I think you have overlooked one or two points. The reason why I proposed 8 or 9 ounces instead of 10 or 11, is because the 10 or 11 ounces were *buckwheat* honey. This, you know, makes quite a difference. I admit, however, that there is some difficulty in regard to the matter of quality. One producer might bring in a lot of very choice ten-cent sections, while his slipshod neighbor would have a similar lot that might have to be sold for 5 cents to close them out. For all this, I do think the ten-cent package would sell, a great many times, where any thing costing more money would not. Your article has suggested that we might, in sorting our 1-lb. sections, pick out, by weighing, certain ones that could be retailed for a dime, and crate these by themselves. In our trade we find quite a good many that do not weigh much more than 10 or 12 ounces. Mark these, "*Your Choice for 10 cts.*," and they might go off quite readily. I did not understand, while at Albany, that any one contemplated short weights at all: it was only to arrange a plan whereby sections might be sold at so much, and thus avoid the necessity of weighing. Some one asked the question of Mr. Wright, how he would prevent consumers from picking out the most desirable sections first. He replied, that there was no remedy. Of course, the grocer would put only one case on the counter at a time, and insist on selling every section before opening another one. He said this same thing happens in all kinds of produce. The last potatoes in a barrel will be the poorest, and so with most kinds of vegetables; but the last purchaser must take what is left, for no dealer could afford to open a new package of choice specimens while the half-broken package remained un-

sold. Weighing up every section sold, and giving full 16 oz. to the pound, is surely the fairest way; but it is a laborious operation, and where only a penny, or even a couple of pennies, cover the amount at stake, it seems as if there might be some speedier way, by lumping off the goods, as it were, instead of going through with the slow process of figuring by ounces. I am sure there is such a thing as wasting more time over pennies than they are worth—in some kinds of business.

THE SCIENCE OF MAKING HONEY VINEGAR.

HOW TO MAKE IT ON A LARGE SCALE.

ON page 64 of GLEANINGS, Jan. 15, E. France tells how to make vinegar from honey. This way will do very well on a small scale; but to make a larger quantity of vinegar, or for the manufacture of it, we need a quicker process. Two years is too long a time for the manufacturer to get his money back for the honey he bought.

To get vinegar, the honey-water has to undergo two different changes: First, the sugar is changed to alcohol and then the alcohol is changed to vinegar—an acid. The latter process is done by growing small vegetables on the surface of the alcohol holding water. By this process there is needed a sufficient amount of air. It is a good plan to separate these two different processes by manufacturing the vinegar.

About the sweetness of the honey-water, it is different for more or less strong vinegar. Thus, if you wish 5 per cent acid in the vinegar you can make the honey-water holding 10 per cent of sugar; or you take 20 per cent of sugar and mix later with one-half of water. So the honey-water can be made holding 8 to 20 per cent of sugar, corresponding with 4 to 10 per cent of acid in the vinegar, nearly. More than 20 per cent of sugar will take too long a time for fermentation, and for changing alcohol to vinegar, or this process would be impossible. For this we want to know how large a per cent of sugar is in the honey-water. It is best to use, for this purpose, an areometer—the same as is used in making wine or beer. This is far more exact than the floating egg, which corresponds to 15 or 18 per cent of sugar, and this gives a strong vinegar.

The honey-water is now put in a standing barrel, with one head out, and here it commences to ferment pretty soon. The higher the temperature, the quicker the fermentation. After about 9 or 10 days, the areometer will show you only 2 or 4 per cent of sugar, and now we will call the honey-water honey-wine. This honey-wine is filtered in barrels till it is clear. The oftener it is filtered from one barrel into another, the quicker it will be done. It will help very much if some fruits of any kind are given with the honey-water in the standing barrel. This will give some tannin to the honey-wine. This fruit can be used a second or third time; so will a small quantity of common cream tartar quicken the process. In about two or three months the wine will be clear enough.

To change this wine to vinegar we know several different ways. I will explain only two.

1. To make vinegar in small quantities, take

some tight barrels, and pour into every one 15 gallons of good old vinegar and 15 gallons of the honey-wine, above described. In about 4 weeks (with high temperature in summer) you can take out of every barrel 15 gallons of vinegar. Now fill up again with 15 gallons of honey-wine. The barrels are about two-thirds full this way, and have to be open all the time. So every barrel gives 15 gallons every month.

2. For a larger quantity of vinegar I approve the following method:

Take any flat vessel, put in some ferment of your honey-wine, and some water and vinegar. In 14 days or 3 weeks you will have on the surface of this water a large quantity of vinegar vegetables, and you will need this for the following process:

The honey-wine, mixed with one-fourth or one-third of old vinegar, is put in another standing barrel, and the above-described vegetable is planted on the surface by a thin well-wetted board. The vegetable will grow, by high temperature, very quickly. In 18 hours the whole surface will be covered by it. In nine or ten days the alcohol is changed to vinegar acid, and the vinegar vegetable falls down to the bottom. The vinegar is now filled up in barrels, and sold. The standing barrel is cleaned, and filled again with the so-called honey-wine. By pouring the vinegar into barrels it is a good plan to mix it with a small quantity of honey-wine; the vinegar will keep better and stronger. The barrels should be well closed. By this method the honey is changed in 80 or 100 days to the best vinegar.

If the honey cost about 5 cents per lb., this vinegar will be cheaper than good wine vinegar can be made; but vinegar made of corn and grain can be sold at a lower price, for the starch and sugar which are to be converted into vinegar will cost not more than 3 cts. per lb. But the honey-vinegar is far the better, and nearly as good as the best wine vinegar. Spirituous vinegar can not be made in the United States, on account of the governmental dues.

Let me give some more rules for its manufacture. On an average, the honey will contain about 75 per cent of sugar. By making the honey-wine, about 15 per cent of the fluid is lost, and in vinegar-making, not quite 10 per cent. The higher the temperature, the quicker the process, but the greater the loss.

All this I have verified by many experiments, and it seems to me not impossible to manufacture the honey-vinegar on a large scale.

Selma, Tex., Jan. 27, 1887. L. STACHELHAUSEN.

I will explain to our readers, that friend S. would probably prefer to write the above letter in his native German than in English; yet the facts he furnishes are so important we give the article, as nearly as we can, as it came from his pen. There is something wonderfully interesting to me about this vinegar-plant—a plant that will cover the surface of a barrel in only 18 hours. And this reminds me of a vinegar-plant which was propagated and sold, perhaps 20 years ago. It looked like a piece of loose cotton, or, perhaps, like white vinegar-mother. Well, if a little bunch of plant was placed in a glass or jar of sweetened water, and the whole placed in the sun, in a warm temperature, that plant commenced growing by

taking the sugar from the water, and converting it into vinegar. Unless the plant was kept supplied with sweetened water, it died; but when well fed it grew enormously. The white flakes kept up a constant motion by alternately sinking to the bottom of the jar, and rising again. This motion was caused by little globules of gas that were constantly forming and enlarging inside the flakes of mother. When they rose to the surface the gas passed out into the air, and made the flakes drop again. I wonder if any of the readers of GLEANINGS know where this plant can be obtained. Years ago, while in Boston, I saw a man on the street-corner, selling a summer drink manufactured by the same or a similar plant. While it was foaming from the rapid growth of this strange plant, in the warm sunshine, it was poured into goblets, iced like lemonade, and served to customers.

HOUSE-WARMING.

W. F. CLARKE ON SLEEPING IN COLD BEDROOMS.

I WANT to back up what Prof. Cook says about making home comfortable in the winter time, regardless of cost. There are some economies that are "penny wise, but pound foolish."

To save a few dollars at the expense of the comfort and health of a whole family is surely a great piece of folly. Yet it is what many people are doing every winter of their lives, and I think this is especially the case with the farming community. According to my observations, there are few country homes that are really comfortable in the winter time. In most farm-houses an ample kitchen forms the living-room. There the meals are taken, and there in the evening the domestic circle is formed. Few country houses have more than one fire constantly going. This warms the living-room, and perhaps one bedroom which opens out of it. The rest of the house is cold most of the time. There is, very likely, a sitting-room or parlor; but a fire is kindled there only on "high-days and holidays," on Sundays, on wedding or funeral occasions, and when there is company. There are exceptions to this. In some farm-houses there is a hall stove kept going. In others, a fire is constantly burning in the parlor or sitting-room. But from my travels and observations, I am inclined to think these cases are largely in the minority.

In this country many of the better class of farm-houses are built of stone. This material makes a most substantial and durable building, but it is one that is extremely cold in winter, unless artificial heat is applied. A stone wall becomes permeated with dampness, absorbing moisture from the earth by means of capillary attraction. Flesh and blood are more sensitive to damp cold than to dry cold. A frame house, being to a great extent porous, admits both cold and heat more freely than a stone house. In a severe spell of weather, cold gets into a stone house and stays there, while a frame house becomes perceptibly warmer when the temperature moderates out of doors. Brick houses are open to the same objection as stone ones, though in a lesser degree, unless they are built on the hollow-wall principle, as few brick houses are.

I stopped over in a stone farm-house one night in Nov., 1885. The spare bed was very nicely fixed up,

even to "pillow-shams." There was a pile of bed-clothes, and the sheets were woolen ones. The bed was soft, I was tired, and every thing seemed to invite repose. But I could not get warm all night, though I kept on my flannel shirt and drawers. In the middle of the night I shook as with an ague-chill. Already, though winter had scarcely begun, the damp cold had gained foot-hold in that room, and the heat of my body was insufficient to overcome the chilliness garrisoned in a big heap of bed-clothes. Next day, some conversation sprang up about warming bedrooms in winter. Of course, I did not complain of my quarters; but in an "aside," some of the young folks told me "pa" and "ma" had no idea how cold it was upstairs in winter:

The trouble of it is, too many of us are all the time getting ready to live. We look forward to a future of enjoyment when we shall have made some money, and prospered sufficiently to have all things pleasant about us. Meantime we pinch and punish ourselves and those dependent on us, and wait indefinitely for "a good time coming," which is very long in arriving, and perhaps does not come at all. The poet Young says:—

"Of all man's ruinous mistakes, this bears the palm:
That all men are *about to live*,
For ever on the brink of being born."

Meantime, the years are gliding by. Age is creeping upon us. Our children are leaving the homestead, and setting up for themselves, carrying away with them the recollection of summers passed in hard outdoor labor, and winters that have been cold and dreary work in the barnyard or kitchen during the day, a brief "cuddle" around the cooking-stove after supper, and then ascent to a cheerless, chilly bedroom, where, after many preliminary shivers, forgetfulness of all trouble and discomfort is found in sleep. Is it not desirable to put a little more enjoyment and brightness into our own and our children's lives? Why must we be like Aunt Nabby Powers, who was constantly ejaculating, "Lame! Enjoyment here below ain't for me. I'm one o' them that's of few days and full o' trouble; as the good Book says, 'It's a world of tribbylation,' anyhow. Lame! lame!" We hang up "Home, Sweet Home," on our walls; but do we translate the motto into every-day experience as we might, could, and should? I make all due allowance for the struggling and calculation necessary on the part of many families in the country as well as in the town; but I know some farmers whose land is clear, whose buildings are good, and who have money out at interest, who, from carrying the practice of economy too far, deprive themselves and their children of comforts that could well be afforded, and would make life far more worth the living.

This plea for house-warming has expanded to an extent that leaves but little chance for adverting to the professor's plea for furnaces. As already remarked, I agree with his views in the main, and go for the furnace method, with careful construction, in all cases in which the cost can be afforded, and the house is of some size; but a house no larger than that described by the professor can be warmed more cheaply than by means of a furnace. My own is of about the same dimensions, and is made as comfortable as need be as follows: A \$30.00 base-burner stove warms the sitting-room and parlor, which are connected with folding-doors. The pipe goes directly into a small hall, and takes the chill

off that. A small Franklin stove, lighted only in extremely cold weather, is in the parlor, always open for ventilating purposes. In the kitchen and living-room (combined in our house) is a most effective parlor cook-stove, fed by wood, the pipe passing directly upstairs, and warming two bedrooms quite sufficiently for sleeping purposes. There is a bedroom downstairs connected with both kitchen and sitting-room, and a spare bedroom upstairs, easily warmed by putting on a little extra fire in the base-burner and Franklin stove downstairs when there is company.

The objection to Prof. Cook's plan with many will be the first cost of the furnace, which will be from \$150 to \$200. To my mind, another great objection is not seeing the fire. A fire warms you up better, if you see it. We read in Scripture, "Aha! I am warm, I have seen the fire." If Prof. Cook will deduct enough from his \$40 fuel-bill for the furnace, to run an open wood-stove in his sitting-room, he will have a "fireside," and a "domestic hearth," which he hasn't now, and he will find the ventilation better. I advise him and all others wishing to get the most home comfort out of winter fires to send to the Smith & Anthony stove-makers, 52 Union Street, Boston, Mass., for a little pamphlet entitled, "Some artistic fireplaces." The professor was "brought up in the warmth and glare of the old fireplace." So was I; and there was cheerfulness and luxury as well as warmth about it. It is all very well not to have the pleasant living-room "cumbered with ugly stoves and coils," but you do not need to have an *ugly* stove. I have one that is "a thing of beauty and a joy for ever." When its two stories of mica windows are lighted up with anthracite radiance it is next only to the old-fashioned fireplace I was brought up by. And if I want to recall the vision of that I can start up the open Franklin. Let me say, there is no escape of hard-coal dust or gas from a properly made base-burner stove, and its draft is constantly carrying off the foul gases with the lower stratum of air. The care of such a stove is less than that of a furnace fed with wood.

I, too, get up first, and light the cooking-stove, as I presume the professor does; and then I usually stir the porridge, which I like well boiled. Then it is but the work of a few minutes to shake down the base-burner, put in a scuttleful of coal, turn on the dampers, and empty the ashes. All can be done so neatly, that even if Mrs. Professor wears magnifying-glasses she will detect no litter. Another shake-down in the evening, and a second scuttleful of coal, completes the care of a stove "worth its weight in gold," if I couldn't get another like it for \$50. I am sure this is far less work than the care and attention needed by a wood-furnace. If I ran a furnace, it would be a coal one. Boynton's, and others that might be named, are as clean and sweet as furnaces for wood.

W. F. CLARKE.

Guelph, Ont., Feb. 21, 1887.

I am very glad indeed, friend C., to have you take up this matter of making our homes pleasantly warm. When reading your article I remembered the time when I used to teach school and "board around." It is not pleasant to the women-folks, neither is it pleasant to the men-folks or children, to be around the cooking-stove in the way, and I think it will pay in dollars and cents for every household to have some sort of a pleasant room away from the cooking-

stove, especially where there are children in the home. A young couple, just married, can stand it very well around the cooking-stove, for they would be happy almost anywhere.

A VISIT TO AN APIARY AMONG THE GREEN MOUNTAINS.

NELLIE LINSWICK TELLS US MORE ABOUT THE "KNOW-IT-ALL BEE-KEEPERS."

THE middle of July found me in one of the loveliest valleys of the Green Mountains. In company with my friends I took long walks and drives, now following the valley road that crossed and recrossed a narrow, busy stream, and now climbing the steep mountain-sides. Sometimes I was delighted by seeing the bright flowers of a familiar home honey-plant, the willow herb, known to my friends by the far prettier name of Indian wickopee.

One evening at the tea-table Mary looked across at her husband, saying, "Can you tell me, Charley, why, above all other things, we have not thought to exhibit our village bee-keeper?"

"He shall be exhibited this evening at once," said Charley, promptly, pushing back his chair; and five minutes later we were walking down the village street.

We found our bee-keeper, his day's work done, smoking the pipe of peace as he sat beneath his own vine and fig-tree. When Charley introduced me and made known our wishes, the pipe mysteriously disappeared, and a friendly smile brightened his face, as, requesting us to follow, he led us down the garden paths to where a dozen venerable apple-trees spread their protecting branches over seventy-five colonies. It was a pleasant sight; and very pleasant to hear was the familiar evening sound, always reminding me of the wind in a pine-forest.

The hives were double-storied, run entirely for extracted honey; and in reply to a question regarding the size of the frame used, a cover was lifted. It was a flat cover, and the frames were so near the top of the hive that the excitable hybrids boiled over the edges on every side. I scarcely glanced at the frames, so possessed was I with the thought that I had caused him trouble by making it necessary to light a smoker, when suddenly the cover was pushed carelessly back into its place, crushing and maiming beneath its cruel weight a hundred innocent lives. An involuntary cry of horror passed my lips. Our friend looked up in alarm; but instantly divining the reason of my cry he smilingly said, "I conclude you have not kept bees very long if that hurts you. Now, we old bee-keepers don't mind such things, and we haven't the time to bother with smoke, or shoving a cover on so slowly as not to kill them."

Heaven forbid, thought I, that I should keep bees till I become so hardened!

Against one of the trees stood a swarmer—two long pieces of wood fastened together with pins, and surmounted by a light box. The strips of wood could be slipped by each other, and the pins inserted in new places, thus lengthening or shortening the device. But it was too heavy for a woman's hands, admirable though it might be for this strong, broad-shouldered man.

In one corner stood a small building in which he wintered his bees; and, throwing open the door, he explained that the walls were double, and packed with sawdust, and the floor deeply strewn with the same. At this time, however, the floor was covered with a matting of dead bees, and the close, unpleasant air, made it unadvisable to step within. Probably in the fall every thing was made sweet and clean before the bees were packed away, but I could not but think that our way of outdoor wintering, where the bees are sure to get pure fresh air, is preferable.

"Outdoor wintering," said our friend, "would not do for this location. Our winters are too severe."

"The severity of the winter," I returned, "would make no difference if the bees were properly protected."

"But the depth of the snow—they would be smothered," he insisted.

"We are careful, after every severe storm, to see that the entrances are free from snow." And then, stirred with a sudden remembrance of certain mistaken assertions regarding our winter management, I added, with some warmth, "and we never disturb our bees by rasping off the bottom-boards with a bent wire or piece of hoop-iron!"

"Ah! well," was the mild reply, "a way that pleases one may not please another;" and, dropping the subject of wintering, we passed on to the shop, with its medley of hives, frames, extractor, and rows of kegs and bright tin pails. Here the inexhaustible subject of marketing honey was touched upon, and this Vermont bee-keeper won my profound respect by assuring me that disposing of his honey was the simplest part of his business. Of two bee-keepers, the one finding a ready sale for his comb honey because of its beauty and the care he bestows upon it, and the other building up a reliable market for his extracted honey, the latter, in my opinion, deserves by far the greater credit.

As we were leaving, I asked if he would lend me a few bee-journals for a day or two, it had been so long since I had seen one.

"I should be glad to oblige you," was the reply, "but I am not taking any. A few years ago I did take Root's journal for a short time, but I soon found out that it couldn't teach me any thing. We old bee-keepers," he continued, with a quiet smile, "when we have once thoroughly learned our lesson, don't need the advice of bee-journals."

As we passed out the gate, admiring, Mary whispered, "How wise he is!" And then, giving my arm a little squeeze, she added, "How glad I am that we thought to give you this pleasure!" And Charley, walking before with a little pail of clover honey swinging from his fingers, glanced back with a nod and smile. And, indeed, it had been a pleasure; though when our host had cordially urged that our visit be repeated at an earlier hour in the day, when hives could be opened and the complete workings of his apiary exhibited, I remembered the bees he had so unnecessarily sacrificed, and excused myself with thanks. And notwithstanding his assertion, I think too highly of the class to which I am proud to belong, to believe there are many, even among "we old bee-keepers," who have so little regard for the lives of those who toil in our behalf. NELLIE LINSWIK.

Dear friend Nellie, I am very, very glad

you, have put in this plea for humanity for our little workers. I know there are many bee-keepers who do cruelly crush and mangle the little fellows in the way you describe; but no amount of argument will ever convince me that it is the right thing for a Christian man in a Christian country to do; and I am very sure it does not pay, either, in dollars and cents. I have seen colonies become unmanageable by just such treatment, and I have wondered several times, when discussing these matters in regard to bees being a nuisance to the neighbors, whether it were not possible that the whole trouble originated in this kind of mismanagement. I hate to be bothered with a smoker, when I am in a hurry; but by means of the enamel sheet to be placed over the frames before the cover is shut down, I can almost invariably close the hive quickly, and without killing even one bee. Why didn't the man take his pipe along with him, if smoke he *must*, and drive the poor little chaps back with the fumes of tobacco? Much as I object to such a way of doing, I think it better than to kill the bees without scruple.

A FOOT-POWER BUZZ-SAW FOR ONLY 10 CENTS.

RIGGING UP A BUZZ-SAW TO BE RUN BY A SEWING-MACHINE WHEEL AND TREADLE.

A FEW days ago, at an auction sale I purchased a Wheeler & Wilson sewing-machine for ten cents. I am real proud of my purchase! Of course, the sewing attachments are "no good," but it has a good fly-wheel, treadle, and a 6 inch belt-wheel. Now, I want to know if one of those \$2.50 saw-mandrels, with a six-inch saw, could be made to do good work on this machine. I wanted a regular saw-table, engine, etc., but—when!

I used to work in your saw-room, but it seemed to me that those saws were just "sighing" for my fingers, and that the rolls on that big planer were just "groaning" for my thumbs. I "sighed" for the office or the compositors' room (am still sighing), and felt quite relieved to get in the wax-room. Since that I have learned *how to saw, and how to be happy in doing it.*

If I can't convert this machine into a foot-power saw, I know what I can do: I can put an emery-wheel on it, swing it on my back, and go over the country sharpening honey-knives, scissors, etc. May be it would be too heavy, though. Since I have thought over Mrs. Chaddock's experience as book-agent (I admire her ambition) I have decided not to take the machine around on my back. If I can't make a saw of it I will take the machinery out, and use the table for an aquarium stand.

Groesbeck, O., Jan. 8, 1887. WALTER S. POWDER.

Friend P., this matter has come up several times before. A balance-wheel and treadle is exactly what is wanted to propel a buzz-saw, but the machine is too light for any thing like heavy work. If the stuff you wish to cut is only $\frac{1}{4}$ inch, possibly $\frac{3}{8}$, or even $\frac{1}{2}$, a saw made just right would do the work beautifully, very nicely, and true; but to cut stuff for bee-hives needs all the strength of a good strong man while standing on his

feet. Barnes' new foot-power saw-table has a good stout crank that can be used in place of the treadle; and I tell you, one stout man to turn the crank while somebody else does the sawing, does a great deal more work than where one has to tread, and feed the saw besides. For small fine work, for the use of pattern-makers, and some other artisans, your ten-cent foot-power might be a great convenience. I am glad you remember Mrs. Chaddock's experience.

SURPLUS-CASES.

MR. HEDDON GIVES US A CHAT IN REGARD TO THEM.

I WISH to have a little chat (over the caligraph) with you and your men in the shop, regarding surplus-cases. So far as I know, I was first to make surplus-section cases, which contained the bee-space at the top, so necessary to tiering up. If I was not prior in such invention, I was original in it, never having heard of any such thing, unless I have forgotten. I was opposed to separators at that time, and so I constructed what is well known as the Heddon case; and when you get your experimental apiary going, if you make experiments on a sufficiently large scale to tell the facts sought, you will find that this old case of mine is to-day the best ever made, and I believe the best that ever will be, where no separators are used. I believe it can not be improved. I shall not have time, in this, to give all the reasons. I wish I could be in your shop a little while. For the use of separators, I think the tin T case is preferable to it; and as I now desire to use separators, I wish to talk to you about the T case, which is no further a copy of my old case than that it uses the bee-space, and so can be tiered, which plan you will recollect I used to advocate strongly, almost alone, at one time.

I consider the tin T as radically an invention, and a good one too. I think it the coming case, for those who will use separators, and never care to invert them. I do not know who invented it, but I think I recollect seeing it illustrated in a back number of your paper or the *A. B. J.* Several years ago Mr. Vandervort visited me, and he told me that he used no other style of case, and fully explained to me all about how he made the T's and how he fastened them to the cases, and how he used a "follower" that pressed the sections by virtue of a spring. I found Mr. V. a man of far more than ordinary inventive ability, and a very fine mechanic, in both iron and wood. I do not remember whether or not he said he invented the T. As regards using them on the removable or adjusting plan, I also well remember seeing that explained in a back number of one of our journals, and I presume Dr. Miller can tell where. Any way, as soon as it gets to attracting any attention the owner will appear, for I feel sure that the rightful owner will claim a good thing, when we see that, if a thing is *very* good, men will claim it who never dreamed of it.

Two years ago we made some of these T cases, and of 5-16 sides, as you advocate. Years before that, we made cases just like Eaton's, illustrated on page 131, except the movable side, which we had

tested previously, and do not think can be made in any manner so as not to ruin the case. Mr. Eaton speaks of this case doing away with the honey-board, but it never will, because it can not be made to "break joints" with the frames below, unless too narrow sections are used. Besides, when he goes to tiering he lifts with his first case a whole lot of dauby brace-combs, to be placed above and attached at once to his new clean sections. But, why go further? Mr. Eaton is plainly no inventor, as other points in his case clearly show.

I would not make the L-shaped tin to support the T's, but tack a plain flat strip on the bottom edge of the side piece of the case, that would project inward enough to suit me. What can be better? and how much simpler! But I think you were right in the first place, in choosing the stationary rests for the T's. The reasons you give, together with the greater ease of adjusting the sections when they are stationary, to me, more than offsets all to be gained by having so many different lengths of sections in use in the same apiary, which is, in many other respects, a serious detriment. But here is the mechanical botchery of the movable T. The rest which holds it, must be so placed as to prevent the bees from entering the outside sections at their outsides, which, if they can not do, they will not so completely fill and so quickly finish, as when they can.

We give the following preferences to this T case: It is cheaper, and better adapted to the cheaper wood separators. It is also lighter. This is all.

The one-story wide-frame cases, as we now make them, we prefer for reasons as follows: With our screw method, we keep the frames tighter together; we can invert the sections or any longitudinal row of them, at will. We can "jump" these rows from outside to in, or vice versa, at will. The sections are always clean.

Dowagiac, Mich., Feb. 19, 1887. JAMES HEDDON.

Further on, in reply to Dr. Miller you will notice that we have discarded the L tins, and use instead short pieces of iron as recommended by friend Miller. You will see that this places the bee-space *above* the sections. You will observe, also, that we still make the T tins movable, for the reason that the majority of those using the T supers seem to prefer them that way. Many thanks for the suggestions you have made in regard to supers in general. This is a matter that is of considerable interest to us all just at this very time.

THE T SUPER.

ITS ADVANTAGES AND DISADVANTAGES CAREFULLY CONSIDERED.

FRIEND ROOT:—As the T super is now before us, a few words may not be out of place. I had 25 of these supers in use last summer; have been using them for two seasons. I

first got the idea from an article by C. H. Dibbern, in the *A. B. J.*, page 133, 1884. Mine are made for the old-style Heddon hive, but the principle is the same as you have described in *GLEANINGS*. Anyone is likely to see their advantages at once, and I will therefore omit them.

In simplifying the super, by using a continuous tin rest lengthwise at the bottom, instead of Dr. Miller's method of separate rests, you have gained

* I discard all "followers."

the advantage of being able to use other than the $4\frac{1}{4} \times 1\frac{1}{4}$ section by merely spacing the T's differently; but you have also incurred a grievous disadvantage. This rest closes the *outside* entrance to the *outside* sections. Now, you may at first think that this is not of much consequence; but if you do, you are mistaken. The trouble is not in the storing of honey, but in removing the bees when the cases are taken from the hives. If these entrances are left open—a *la* Miller—a few puffs of smoke, applied as soon as the cover is removed, will drive nearly all the bees down into the brood-chamber. If the super be now removed—before that inevitable reaction takes place, and the bees come boiling up again—there will not be enough bees left for a quorum; and if put in a tent or some other suitable place they will quickly adjourn. If, on the other hand, these entrances are closed, as you propose, the bees between the outside sections and the sides of the super can not readily make their escape, and it will be found impossible to drive them out. Now, if the super is placed in the tent, these remaining bees, because of their numbers, are by no means in a hurry to vacate. I doubt not that you will see the full force of this at once. An amateur would not be so likely to.

I have tried both fixed and movable tin T's. I much prefer the movable. They will space themselves more satisfactorily than I can space them. Besides, as you have said, they are better adapted for a follower.

Dr. Miller makes his T's out of two pieces of tin, 12×1 inch; mine are $12 \times \frac{3}{4}$ inch instead, and I have found them much stronger than necessary. This gives a $\frac{3}{8}$ -inch rest for the sections, and holds the separators $\frac{3}{8}$ inch from their bottoms. I think this preferable to $\frac{1}{2}$ inch. My T's are made of good heavy tin, however; perhaps you use lighter tin where they are made from one piece. The price of your T's is much less than I have been able to obtain the material ready to solder.

In the use of this super I have found one serious fault. Dr. Miller's supers are $17\frac{3}{8}$ inches long inside, while yours are $17\frac{1}{4}$. The sections occupy alone just 17 inches. This $\frac{3}{8}$ or $\frac{1}{4}$ of an inch is left for the tin T's, and a little room to work in. It is filled below, but not above. There remains this unoccupied space to be divided between the three spaces between the four rows of sections and the two spaces at the ends of the super. In the first place, if these spaces are not equal (and they are not likely to be) the sections are out of square. In the second place, a line of glue will be put along and down into each of these cracks. If a tin T be dropped down between the rows of sections above, to correspond with the one below, it will hold the sections square; but the last one will be by no means easy to insert, and a line of glue will be placed on each side where the two edges of the T meet the sections. Also, if we use separators $3\frac{1}{2}$ inches wide—and I want none narrower—a special T must be used above, or the T's must be made smaller than you are making them.

Lastly, if it is attempted to make the super short, and crowd the rows of sections together, it will be found difficult to place the last row (or, at least, the last few sections) in position, for they will strike on the tops of the tin T's.

I should like to hear Dr. Miller's experience on the glue question.

WM. DREW.

Iowa City, Iowa, Feb. 19, 1887.

THE T SUPER.

VALUABLE FACTS FROM C. C. MILLER IN REGARD TO ITS PROPER CONSTRUCTION.

FRIEND ROOT:—The L tins that you use in the T super have the advantage that they are simpler and more easily put on than the $1\frac{1}{8} \times 1$ pieces of sheet iron I use. They also admit of using sections $3.25 \times 4\frac{1}{4}$, $4\frac{1}{4} \times 4\frac{1}{4}$, and $5\frac{1}{4} \times 4\frac{1}{4}$, with no change of the super except the different number of T tins used. Besides, the T tins are less likely to fall out of their places with the L tins. A serious objection that outweighs all these advantages is seen only when you come to take out the sections *en masse*. In taking out the sections the superful may be considered as one solid mass, and the only resistance to be overcome is at the outer boundary of this mass where the sections come against the rim of the super. You will readily see, that the more nearly you apply your force to the outer boundary of your section mass, the more easily you will remove them. If you don't see it readily, just try it. Now, with your L tins the follower must be kept distant from the side of the super a distance at least equal to the width of the horizontal part of the L tin, making just so much of a tendency for each section in the outside row to separate from its next neighbor, and wedge itself against the side of the super. By making the supports for the T tins detached, as I use them, I am enabled to have the follower larger, so as to come under the whole bottom of the section, by simply cutting out places in the follower for the square sheet-iron supports to pass through; thus:

FOLLOWER FOR
EMPTYING
THE T SUPER.

FIG. 1.

I tried a continuous piece for a support instead of the detached pieces, but rejected it after trial. A minor objection to the continuous piece is, that it shuts off the outside openings for the bees to pass up into the sections (in the case of pound sections, closing two of the seven openings), leaving, instead, a convenient place for the bees to fill with propolis, thereby increasing the difficulty of removal. If, however, I were obliged to use the L tins I would fasten them on

thus:



instead of thus:



FIG. 2.

FIG. 3.

That is, I would have the bee-space at the top instead of the bottom of the super. I never tried your plan, but I studied over it carefully. My hives are made like many others, with a bee-space on top of the frames, so that it is more convenient on that account to have the bee-space at the top of the super. But if no bee-space were on top of the frames I think I would make one there by putting a little rim around the top of the brood-chamber so I could have the bee-space at the top of the super. Perhaps I can explain why. It is

impossible to make your work so exact that the distance from the L tins, when nailed on to the upper edge of the super, shall be always and everywhere precisely $4\frac{1}{4}$ inches; moreover, the lumber in the super may shrink, even if only a very little; and, besides, a bit of bee-glue, or a slight variation in the size of a section, may make a difference. In either of these cases you may have something like this:

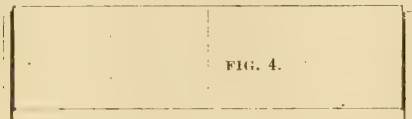


FIG. 4.

The upper surface of the sections being higher than the upper edges of the super:

Now, in tiering up (and I wouldn't use these supers if I couldn't tier them up) there will be difficulty in placing another super on this one, for it must fit *exactly* over these sections, with some liability of injuring the sections, both in putting on and taking off the upper super. On the other hand, if the bottom of the sections rests flush with the bottom of the super, any little inequality such as I have mentioned would produce no worse result than simply to make the bee-space a little smaller.

Speaking of the T tins made of two pieces soldered together, you say: "These are just as good when finished, but are rather expensive to make." Mine cost nearly twice as much, I think, as you offer them at, but I think they are by no means "just as good." In filling a super, when the last section is being put in, it sometimes catches on the sharp edge of one of the T tins, and makes trouble about getting in; whereas, in your T tins the rounded edge will not be so likely to catch and hold the section from going in.

There is an advantage in having the T tins movable that you have not mentioned. It is, that it is so very easy to put in all the sections except the last ones, as you will readily see that, for the first three rows, you can have the space to put them in as loose as you please; whereas, if fixed, all the spaces will be equally tight. Moreover, in putting in the last sections (the most difficult ones, whether the T tins are fixed or movable), if the T tins are movable, the sections, tins and all, can be crowded along so as to make more room, so I think a super with movable tins can be filled more quickly and easily.

My supers are made with the corners double-halved. This not only makes a stiff close corner, but it is very easy to nail together right. Yours, however, being made of thinner stuff, will not admit easily of halving at the corners, and, as I understand it, yours are to be used *inside*. Mine being of $\frac{3}{8}$ stuff, there is never any thing outside the super, which is simpler and cheaper, I suppose, but perhaps there may be some advantage in the extra protection yours have.

The inside length of yours, if I mistake not, is $\frac{1}{2}$ inch less than mine, there being in mine 50 per cent more play lengthwise with the pound sections than in yours. I am a little afraid that, with so little play, some will condemn the super as being too difficult to fill.

Yours are $1\frac{1}{8}$ inches wider than mine. I suppose that is to make them fit the hive. Mine are too narrow to fit my hives, and it is awkward; but I thought I would rather put up with the awkward-

ness than to have them larger. Still, there is room for difference of opinion about this. But please let me insist *very strongly*, that, if you make the inside wider than $12\frac{1}{2}$ you will make it still wider than $13\frac{1}{2}$, and not stop short of at least $14\frac{1}{2}$. Mine are $12\frac{1}{2}$; and let me assure you, from a big experience, that nothing less should be used for a width of six sections measuring $1\frac{1}{2}$ each. I know you can take figures and prove me all wrong, but I have gone through all of that, and thrown away supers because the fit was too tight, so I think I know what I am talking about. Now, if I am right, that $12\frac{1}{2}$ is right for 6 sections, and you make your super $13\frac{1}{2}$, you have just $1\frac{1}{2}$ inches space in which to crowd a $1\frac{1}{2}$ section. I am not sure but that figures may help a little. Seven sections make $7 \times 1\frac{1}{2} = 10\frac{1}{2}$. Add to this, for six wooden separators, $6 \times \frac{1}{2} = 3$, and you have $13\frac{1}{2}$, so you must count on $7\frac{1}{2}$ shrinkage to get them in, if every thing went just by the figures. But in actual practice it doesn't work just by the figures. I wish for once you would be urged by what may seem to you my prejudices. If you make the supers too loose, no great harm will come of it; but if too tight, the result will be worse than you perhaps think, as I know from sad experience.

The more I think about it, the more I don't like the idea of having the super inside the hive. In a busy time in a large apiary, I think it will make extra handling that should be avoided. Is there any real advantage in it? Perhaps you think the supers will not fit nicely on the hives. Mine do not, but the difficulty is easily overcome in actual practice.

C. C. MILLER.

Marengo, Ill., Feb. 21, 1887.

On receipt of the letter above, I wrote to Dr. Miller in substance as follows: We aimed to adapt our super to the Simplicity hive as far as it seemed practicable. In doing this we made one or two slight changes. It is true, your bee-space in the T super is above the sections. We made ours below. The construction of the Simplicity hive necessitates a bee-space under the crate, as there is no shoulder to raise it a bee-space above the frames. You are perhaps aware, that most of our customers are using the Simplicity hive. This brings the sections flush with the top edges of the super; but with our improved machinery it does not seem to me that there will be very much trouble arising from inaccurate work. We think of nothing that would support the T tins as firmly as the L tins. It is true, we could make short pieces of L tins; but we fear that, if we should do this, these small pieces might be lost in packing; and, besides, they would not be as strong.—The inside width of the T super ($13\frac{1}{2}$ in.) is just the same as in the combined crate and Moore crate. In both we use $1\frac{1}{2}$ sections; and in the former, $1\frac{1}{2}$ sections, with tin separators. If we use *wood* separators we have no doubt but that you will need the $12\frac{1}{2}$ -inch space for six $1\frac{1}{2}$ sections. The $1\frac{1}{2}$ when first made will always shrink enough to let in tin separators. There is no way of using wooden separators in our T super unless we use narrow sections.—In regard to the L tins preventing the bees from getting into the last row of sections, would not contraction, as prac-

ticed by yourself and others, obviate the difficulty in a great measure? For the most part, the bees would have a tendency to pass directly into the central rows of sections from the brood-nests. ERNEST.

Dr. Miller replies as follows:

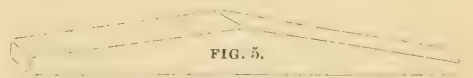
I have looked your letter over carefully, and will now consider the different points. First, you adapt the T super to the Simplicity hive. If nearly all your customers use Simplicities, there is weight in this. In settling upon it for my own use, however, I thought it of first importance to have the super just right, and if the super in that shape was not adapted to the hive, why, then the hive must be adapted to the super. The super is no more adapted to my hive than it is to the Simplicity, so I adapt my hive to the super; and if I had Simplicities I feel pretty sure I would not change the super, but adapt the hive to it. If I understand it rightly, your super is to sit directly on the frames, and I feel pretty sure that, after you have once tried this, and also tried the slat honey-board, you will never again do without the latter. You see it is different from using wide frames. In that case the bits of comb are built between the brood-frames and the wide frames, leaving the sections clean. But in the case of the T super the bits of comb will be fastened directly on the sections, and each time that a new super is added in tiering up, the freshly added sections will, in their turn, be built under with bridges of comb. Now, this is simply unendurable; and I think, when you look over the whole ground fully, you will agree with me, that, for this super, the slat honey-board is nothing more or less than a necessity. If you agree with me in this, then it will not be a very difficult thing to make a slat honey-board that will fit the Simplicity hive and accommodate perfectly the T super. In other words, the honey-board will serve as an adapter. This frees us from the expense of an outside shell, but in its place we have the expense of honey-boards; but as we must have the honey-board anyway, we need count only a small part of the cost of the honey-board—just what it costs extra (if any thing) to make it fit the super. Keep in mind all the time, that, by so doing, we leave the super in perhaps its best shape, and ready to be used on any hive. This latter, however, doesn't count for much, if any thing, for the super as you propose it can also be used on any hive. By the way, I would, I think, have a honey-board for the S. hive with a lower beveled edge to fit the hive, and the top level to fit the super.

Your objection to the square sheet-iron pieces instead of the L tins (being lost in the packing) is a valid one; and you might have added, that the L tins are much easier put on. But in packing, if the number of pieces be small they can be wrapped in stout paper and nailed on. If the bee-space must be at the bottom, then I would still use the sheet-iron pieces, putting them on L shaped.

You ask if contraction, which I and others practice, will not obviate the objection, that the L tins will hinder the bees from passing directly into the outside row of sections. The greatest objection, at least one of the greatest objections to the system of contraction, is that it prevents the bees from being directly under all parts of the super, unless dummies be used between the brood-frames to make the brood-nest wider. If I had only three frames in the brood-nest I should just as much

want direct passage into the outside row of sections, in order to encourage outside work, and I would then have the three brood-frames under one side of the super; and after work was well started in the one side of the super, reverse (not invert) it and let them start in the other. The bees will find abundant room to enter at center of super, but I would rather close some of the central entrances and force the fullest use of the side entrances, so as to induce equal work in all parts of the super. I may say, in passing, that the contraction business may not be a permanent affair.

You say no complaint has been made of the width of the Moore super. Were not the Moore supers used without separators? Even with tin separators, some difference in width would be needed. After largely trying both wood and tin separators, both in wide frames and T supers, I could not be induced to use wood on wide frames, and I would object almost as strongly to tin in T supers. I am using wood separators, having thrown aside thousands of tin, occasionally using a tin one where the fit is unusually tight. Wood is warmer than tin; and when used loose in a super it keeps straight where tin would bend. Moreover, a width that would just do in a Moore super would be too tight for a T super; that is, if the Moore super is what I have called a Heddon super. In the Moore super, if a section is started in at all, it can be crowded down into place, as the wooden wall on each side keeps it right in its place. On the other hand, in the T super, if tight, the edges of the sections will slip by each other, and will also catch on the T tins. As I think more about it, I object seriously to having the supers hold more than 24 1-lb. sections. I would rather have them smaller than larger. (I forgot to say, that I think the large majority of your customers use tin instead of wood separators because they have been in the habit of using tin on wide frames, and have never tried wood. After trying wood I think they will prefer it where the separators are not nailed on.) Whilst I do not believe as much in contraction as some do, I hardly think you will want to run more than seven or eight brood-frames while supers are on; and I know from troublesome experience that it is very undesirable to have the super wider than the brood-nest. Bees will not work nearly as well in that part of the super which has no brood-frames under. If the super must be 13½ inches in width, then I would put in only six 1-lb. sections in width, and fill up the empty space with a follower fastened with double-pointed wedges like this:



E. S. Armstrong, and perhaps others, use this arrangement, and I rather like it.

I think I shall hereafter use T tins on top as well as under the sections. It will cost an additional three cents per super, and they will hold the sections more smoothly in place, and also prevent the bees from daubing propolis on the sides of the sections.

Referring to page 51 of "A Year Among the Bees," at the bottom you will see I covered supers with quilts. The past season I used with great satisfaction 50 wooden covers on the supers, and shall use them entirely the coming summer. It is simply a plain cover as wide as the super, and as long, or a little longer, made of ¾ pine, cleated.

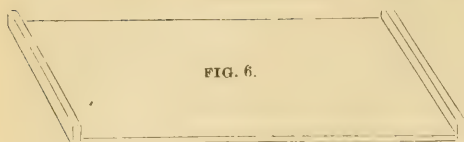


FIG. 6.

The principal reason for using this wooden cover is because, when using the sheet or quilt, the bees very freely propolize the tops of the sections, and this board allows a bee-space on top, so that the bees leave the sections nearly clean—another reason, you see, for having the bee-space on top. If there is to be no bee-space on top I would still use this board, having a $\frac{3}{8}$ rim on the board to make the bee-space. No other cover is put on top of this super cover.

C. C. MILLER.

Marengo, Ill., Feb. 28, 1887.

The above correspondence between Ernest and Dr. Miller touches on several important matters connected with the matter of getting comb honey. Now, the experience of a man who has raised honey by the tons, and first-class honey too, is surely worth something. Another thing that is encouraging, is, that a large amount of correspondence in regard to this matter of T tins and T supers agrees remarkably with everything Dr. Miller has said. Let us take up the different points one by one.

T TINS, AND HOW TO FASTEN THEM IN THE SUPER.

The general opinion seems to be, that they should be movable, and that they should be used on top of the sections as well as below. Second, they should be supported in such a manner as to allow the bees access between the side of the super and the outside row of sections. The plan given by Dr. Miller above is perhaps as good as any. To prevent losing the six little pieces of iron alluded to, I would by all means nail them in their places, even when the supers are sent out in the flat. This is quickly done in the factory where the cases are made, and saves valuable time for the buyer. They pack just as closely, and there is no possibility of being lost or mislaid.

SHALL THE SUPER BE MADE SO THE BEE-SPACE IS ABOVE THE SECTIONS OR BELOW THE SECTIONS?

With the evidence given, I should say have the bee-space by all means above the sections, then use a plain honey-board on the super, and the friends who have complained so much about the trouble of closing the bee-space between the sections of the top-most super will have their problem solved. Mats, enamel sheets, or quilts, are not desirable, for they soil the tops of the sections, and cause the bees to put on more propolis than the plain honey-board with the bee-space above.

USING A SLATTED HONEY-BOARD IN CONNECTION WITH SUPERS.

The slatted honey-board should be by all means used. Ten or twelve years ago I abandoned the T-super arrangement, principally because of the comb attachments between the brood-combs and the bottoms of the sections. We owe friend Heddon a vote of thanks for having stirred us all up to the

importance of some sort of a honey-board between the sections and the brood-frames, in order to avoid these attachments.

HAVING A COVERING TO PROTECT THE SUPERS FROM BOTH FROST AND SUN.

Here is a point where Dr. Miller and I shall have to disagree just a little. Some years ago I made such very full and complete experiments in trying to decide whether the chaff hive was an advantage in winter as well as in summer, that I think I can not be mistaken in thinking we should get more honey in a well-protected super than in one exposed directly to the weather, especially where there are cracks admitting rain and wind. I verified it again in the house apiary, by having the bees build and store comb honey in sections protected by good warm covering, and without any protection except a piece of ducking. I repeatedly caused the bees to commence storing and stop storing in supers by putting a close warm box over them and taking it off again. The fierce heat of the sun would stop work, and within a week or ten days cold nights would stop work; whereas, if an outer hive or box confined the air at such a time, work would go right along. Colonies of equal strength were tested side by side, and more bees went to the fields, and more pounds of honey were gathered, where protection was given. Almost any bee-keeper can test this by using chaff hives side by side with hives made of inch boards. Another thing in favor of using Simplicity hives: There are thousands, and may be hundreds of thousands, in actual use in all parts of the world. We have ourselves for a number of years sold ten or fifteen thousand annually. One reason why we sell so many is because we make every thing to match these hives in actual use. A great many times something has come up, seeming to make it desirable to change them—this matter of eight or ten combs for a hive, for instance, and the changes back and forth from comb to extracted honey. Almost invariably, however, in a few months we have reason to be glad we did not change our machinery and methods. If there seems to be a great advantage in using hives with only eight frames, I think by far the cheapest way will be to put in a dummy or dummies, as friend Miller does himself, and let your hives remain all of one size outside.

HAVING A SUPER NO WIDER THAN A BROOD-NEST, AND A BROOD-NEST NO WIDER THAN A SUPER.

I believe friend Miller is about right in this matter. With better protection for his supers, however, such as the chaff hive gives, I think his bees would work just as well and he might perhaps get from ten to twenty per cent more honey by letting the super be wider than the brood-nest—say about an inch or two on each side. The season might have something to do with it, however. I have repeatedly seen a powerful colony working on 80 sections in a chaff hive, all at once, and the sections that did not stand over the brood-nest seemed to be filled almost as quickly as the others. I think the reason is because the bees are so

thoroughly protected from the extremely hot sun, as well as from the very cool nights. We are now making T supers exactly as Dr. Miller recommends, only they are made of lighter stuff, on account of the outside protection afforded by the chaff hive, or by additional stories of the Simplicity hive. There are more pieces to handle in getting a crop of honey, I admit, but I think the extra amount of honey received because of this protection will pay for the extra labor.

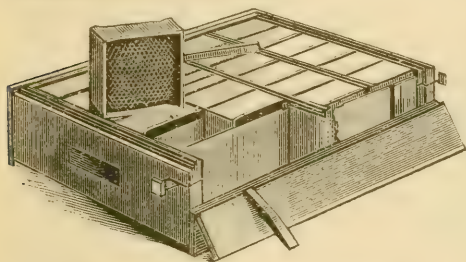
ARMSTRONG'S REVERSIBLE T SUPER.

SHALL WE REVERSE THE T SUPER?

FRIEND ROOT:—I send you to-day a sample of my reversible T-tinned honey-rack, or section-case. I find it is giving great satisfaction. I know it is a little more costly than yours; but then, I can get at my sections singly much easier than in yours, but perhaps that will not cut any very great figure among practical beekeepers. Inclosed you will find a description of the same.

E. S. ARMSTRONG.

Jerseyville, Ill., Feb. 28, 1887.



NEW REVERSIBLE SECTION-CASE.

The above cut shows my new reversible section-case. It is made with loose, adjustable T tins, so arranged as to keep the sections straight and clean. It can be adapted to wide frames if desired. It holds 24 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ sections, 5 thin wooden separators, and 2 adjustable following-boards, all being held firmly in place by my double clamping-wedges. It can be used without separators if desired, as the separators rest on the tins, and are not fastened to any thing. It is perfectly reversible, having the loose, adjustable T tins on both sides, and in every thing else being exactly alike it is always right side up, and the upper side is always the side to open. If you wish to reverse or remove one or more sections singly, you have simply to unbutton the upper holder, which will liberate the T tins and give you free access to any section in the case.

Friend Armstrong has sent us a sample of the reversing T super described above. We are constantly receiving a great many reversing supers, but we are free to say that we have not seen any thing that seems to be better constructed for reversing than this super. Our readers will notice by the cut that the T super has the T tins above and below the sections. There is certainly a great advantage in having the T tins above. In the first place, it keeps the bees from propolizing the upper corners of the sections. In the second place, it holds the sections square, or, in other words, two sets of T tins above and below, make the space between the sections, both at top and bottom, equal, thereby accomplishing one of the good features named for the Moore crate, but with

this advantage: It permits the use of separators. Friend Armstrong has also two followers, a plain board of the size of one of the wooden separators which he uses in the case. These plain boards are used at the extreme outsides of all the sections in the case. A space is thus left for a wedge, as seen in the engraving, and as mentioned by friend Miller elsewhere. We believe there is quite an advantage in having the sections pressed up tightly, as it closes the interstices between the sections, and, in consequence, it is claimed that the bees are less liable to propolize where the sections come together. The manner in which friend Armstrong has constructed his case for reversing is quite ingenious. There it no "right side up" to the case. It can be used just as well one side up as the other, and, as our readers will see by the above engraving, the sections may be easily removed. Now, we would hardly like to say so many things in favor of friend Armstrong's case had it not, we believe, Dr. Miller's indorsement of one or more of its features.

We have considered the good points in this case, so let us now consider some of the weak points which might be named against it. First, its construction is rather complicated. There are four pieces of wood for each side of the shell, making, in all, including the two ends, ten pieces. The button arrangement for removing one of the sides is very neat in the sample sent, but we fear it will be difficult to construct it in all cases so that it will work as nicely as might be desired. It seems to us, then, that the case will be rather too expensive for the majority of our bee-friends, who, with the low price of honey, are aiming to reduce the cost of producing honey to the minimum. We doubt whether it pays to go to the extra expense of making a case invertible for the possible advantages it may give. We believe, too, that a great many, if not a majority, of those who once advised inverting, are, to say the least, not now so ardent in its praises.

DOES IT PAY TO GO TO MUCH EXPENSE IN EXHIBITING HONEY?

MORE ABOUT MARTIN'S HONEY-EXHIBIT.

FRIEND ROOT:—I have received some inquiries relative to the honey-exhibit in a late issue of GLEANINGS, and will, therefore, give a few further details. In your comments upon the exhibit, you probably echo the sentiments of a great many others when you question the advisability of spending time and money in making such an exhibit; or, in other words, the question resolves itself into this: Does it *pay* to spend time and money to advertise the honey-business? If we look around us, we see every trade making strenuous efforts to get ahead. Take up the most obscure county paper, and every trade is represented in its columns. Our most successful merchants are the ones who "catch on" to every advertising novelty to be used in the extension of their business. The leading merchants in a thriving village set up mile boards with their name upon them, for 20 miles into the surrounding country. Our fairs are

the red-hot centers of attraction and advertising. Near my exhibit was a display of wall-papers. A room about 12 feet square was built, and decorated with expensive paper; and so it is through all lines of business, with the exception, perhaps, of bee-keeping.

Probably the hardest thing for a spirited bee-keeper to bear, at the present time, is the general belief that bee-keeping is a small business, and that any ninny who knows just enough to chew gum can successfully produce honey; and bee-keepers, as a rule, are following a course of action to confirm people in that belief; for if a business is not worth a little advertising effort, it is not much of a business. And right here, friend Root, I wish you would insert the cartoon found on page 347, Vol.



IMPENDING BANKRUPTCY.

VII. of GLEANINGS. It fully expresses the general idea the bee-keepers of this country have in relation to advertising their business. That is the great trouble with our markets, and the sale of honey; it is the sit-down, do nothing, good-for-nothing, waiting-for-something-to-turn-up policy. Our Canadian brethren are away ahead of us in the line of exhibits at fairs; and at our recent convention at Albany this fact stuck right out when it was mentioned that, in Toronto, the honey-exhibit piled up to twenty tons, and the exhibit in our own great State of New York, the Empire State of the nation, at its last annual fair, was twenty pounds! Now, my dear N. Y. State reader, look at the above cartoon; does that chap look like you? If he does, look yourself in the face and blush.

Our Canadian brethren, finding that it pays to exhibit twenty tons in the home country, incurred a great expense by shipping forty tons to England to exhibit, and they found their enterprise richly rewarded, not only in present sales, but in future markets.

A like fair for the exhibit of products from the United States will be held during the coming season, and I don't hear any thing about the honey-business being represented, and it probably will

not be, unless some of our magnanimous commission merchants take hold of it; and I will leave it to the reader to infer how much the producer will be benefited thereby. There is some excuse for us, however, as the exhibit comes in a season when a first-class exhibit would probably be impossible.

I commenced this article to describe certain parts of my exhibit. Our Canadian friends have written me kind words of encouragement. I find that the log cabin has special charms for them, and I have been requested to explain how it is made.

The front is a thin board, 18 inches wide and 30 inches long; the Jones half-pound cans are attached to this with No. 30 tinned wire (such as we use in wiring frames). The end is 20 by 18 inches, with a gable. These two parts, after the tins are fastened on, are hooked together. A board covered with fdn. is put on for a roof, and it is set so the vacancy in the rear can not be seen, and it passes for a very good log cabin, and is easily made. The tins that are put on with wire are, of course, empty; the upright tins and pails can be filled if desired. The pavilion is also easily made. The main work is upon the wooden frame. It is made so as to be taken apart for shipment. In fact, the whole exhibit is made with that end in view. A very little time (and less money) was expended, as it was made for show and not for permanence. J. H. MARTIN.

Hartford, N. Y.

Friend Martin, I give up; I guess you are all right. The expense of your exhibit, come to understand it, is not as great as I supposed, and I had entirely forgotten about the great (?) exhibit of the State of New York. I suppose, of course we should be consistent in these things. A large bee-keeper, or one who has tons of honey to sell every season, could better afford to make an exhibit that would astonish the people, than the one who may have more enthusiasm but less cash or experience. What I had in mind was the danger of letting our enthusiasm lead us into *unwise* expenditures.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

THE T SUPER WITH TINS AT FIXED DISTANCES.

I HAVE used your T supers, figured in last GLEANINGS, on Heddon's 8-frame hive, for two or three years, with the T stationary. I make the T one-half inch longer than the inside width of super, which, turned bottom up before you, space off for length of sections on edge of side piece. Make fine saw-kerf in those spaces, but slanting, so as not to show on outside; drive the body of the T right down into the kerf; and as it laps on to each side piece $\frac{1}{4}$ inch, you can nail each $\frac{1}{8}$ -inch-wide flange, that the sections rest on, to what will be the bottom of sides. They appear quite firm before being nailed. The sections will, of course, be on a level with the bottom of the crate, so you will have a bee-space on the upper side of the crate; and for the one below, depend on the one in the wooden honey-board or hive. You readily see, that fastening the ends of the T in this way makes them much stronger than when flopping loosely around. It also avoids your two pieces of angled tin strips the

whole length of the crate. I use two flat strips of tin, $\frac{1}{2}$ inch wide, same length of T's, nailed on to bottom of ends of crate, projecting inside $\frac{1}{8}$ inch. I have 64 swarms with this arrangement, and 33 with the combined crate and 10 frames, but I like the 8-frame and the T super far better.

Watertown, N. Y., Feb. 21, 1887. JAY DIMICK.

THE T SUPER—A SUGGESTION.

I am making a T super for the L. hive, so that I can bring the two outside rows of sections to the center of the brood-frames, by making the supers six inches wide inside (according to size or width of section), or one-half the width of the hive. By changing sides with supers this brings the outside rows in the center. It is a great drawback to have the two outside rows of sections unfinished, which has for a long time kept my mind and eye open for something to solve the problem. I think I have found it. I shall give it a thorough trial this season. Any person can make this and use it, or give it a trial, and report.

WILL ELLIS.

St. Davids, Ont., Can.

Many thanks, friend Ellis. Your idea of turning the outside rows of sections in the T super so that they come over the center of the brood-nest is ingenious. The only difficulty I see in the way, is the additional expense. I am not sure that the advantages from changing the outside rows of sections in the T super, as you describe, will pay for the extra cost. You know we want to produce our honey with the least outlay of money possible. The bee-keeper who produces honey at a minimum cost is the one destined to make the most clear gain. You notice that the T super, which we illustrated on page 156, is made just as cheap as any thing can possibly be made—simply an outside shell, and the T and L tins.

ITALIANS, HYBRIDS, AND BLACKS.

We purchased 15 colonies last spring at an auction. Three were pure Italians, five pure blacks (as you call them), and the rest hybrids. We increased them to 55 and took a little over 2000 lbs. of surplus, 1400 of comb, and 600 of extracted; but, as usual with me, the hybrids were ahead in the amount of honey gathered; the blacks came out next, and the Italians were far behind. The Italians are, with me, poor comb-builders. They will make too much drone comb, and put too much honey in the brood-chamber; and as I use only starters, either above or below, these two faults would outweigh, with me, even if they did make a little more honey. My blacks are much the most pleasant bees to handle; but with me a black queen and an Italian drone produce the best-natured bees I have ever handled, and they are the best workers. Indeed, I never had any trouble with cross bees in my old apiary until I purchased Italian queens, and yet my bees were nearly half yellow by means of my neighbors' Italian drones. From what I read in the papers, and from my own experience, I conclude that there must be a great difference in the native bees of America, called "blacks."

H. V. TRAIN.

Mauston, Wis., Feb., 1887.

WHAT MADE THE BEES SO CROSS?

I should like to know what made bees so cross in 1886. I had three stands of Italians, and they got so cross that I could not handle them at all. I went to

take some honey in the month of July, and they tried to sting me to death. They even left the hive and went to the barn, which was three rods from the hive, and got on my hogs, and I had to go and get my hogs out of the pen and put them in the barn, or they would have been killed.

HENRY BOGARDUS.

La Fontaine, Ind., Feb. 19, 1887.

Friend B., I can not suggest any reason, but that the bees had suddenly ceased to find honey in the fields. As a general thing, they are gathering honey in most localities during July. Toward the close of the month the basswood often fails quite suddenly; then the bees, instead of being full of honey, are loafing around the hive, comparatively empty and cross; and at such times you should not attempt to take their honey, or do any thing with them. Take the honey away before the yield has closed up, and you will find them peaceable and gentle. Even a colony of full-blood Italians, when they get stirred up at about this season of the year, will sometimes leave the hive, and almost chase one off from the premises.

THE BINGHAM SMOKER, AND HOW TO USE IT.

With this I mail you a "Doctor" smoker, such as I have learned to consult when in need. It is not likely that you will like it at first. Artemas Ward said, that "habit is a bad habit." It will, however, perhaps, win its way to a good practice after becoming familiar with its patients. It will require lots of wood, and, in turn for this trouble, will allow you to slowly send a vast volume of smoke just over the hive in which you wish to find a queen, so slowly and so carefully as not to startle the bees, yet so ample as to give them a realizing sense of who their master is. This controllable feature I think you will learn to like.

Probably why I like so much smoke in the air about me is, that the bees have much respect for me, when so surrounded. This fact, no doubt, you have fully and well learned. I never use a bee-veil, as it is such a burden, and renders bee-work so tiresome. Yet it probably is a fact, that we use more smoke in our apiary than is used in any other, of a similar size, in the U. S.

We are able to work fast, as we do not have to "subdue" bees (as filling the hive with smoke is called, etc.); so much smoke in the air answers just as well, and we think much better, and saves more time than the stovewood costs. You will find maple and ironwood the best fuel for easy use. When you wish to quit work for the night, a gallon jar or crock partly full of water will be a good safe place to put the coals the smoker may contain—one thing you will sometimes find handy when all the smoke is gone from the coals. Hot air is as good as smoke for the control of bees.

Abronia, Mich., March 1, 1887. T. F. BINGHAM.

Your smoker was received, and it certainly is well and substantially made. There seems to be nothing in its construction that will "play out" soon. As you suggest, and I think, too, owing to habit, I did not like it quite as well as the Clark on first trial in the apiary this spring, but perhaps after I have tested it more thoroughly this summer I shall change my opinion somewhat.

ERNEST.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: *Sheep Off, Silver Keys, The Giant-Killer, or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room.* We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY. WINDMILLS AS A MOTIVE POWER FOR HIVE-WORK.

AFTER the events recorded in our last, the boys could talk of nothing but windmills, before and after school, and at recess; in fact, I am afraid their studies suffered more or less from it. They inquired of everybody they knew who could give them any information about windmills. In the meantime, Mr. Green had talked with some of his friends who were skilled in the mechanic arts in regard to this same matter. He had also sent for a couple of price lists of those having windmills for sale. Ere long the two price lists came to hand; and after fully considering the possibility of the boys making a windmill, Mr. G. invited Jimmy over one evening to talk with him and Sam. Jimmy needed no second invitation; but before the appointed time he was on hand. Mr. G. then produced the two catalogues, accompanied by a couple of letters, for he had made some inquiries of the manufacturers in regard to the proper size of a mill for doing light buzz-saw work. When Mr. G. could get the boys quieted he began:

"Upon some inquiry which I have made, I find that about one horse-power is required to run a buzz-saw suitable for average hive-making work, and I have been told that even a half horse-power will answer, providing a light-running arbor, with a thin, well-sharpened saw is used; and providing, too, that the saw is not crowded too hard with $\frac{3}{4}$ stuff. I think on the whole, boys, if you make a windmill at all you ought to calculate upon at least a half horse-power. It is true, this will not give us power enough to work to the best advantage; but I think it will be enough for you boys. Now, then, what size of mill is necessary to produce this power in a fair wind?"

Mr. G. then requested his wife to bring him the two catalogues from his secretary.

"There," said he, pointing to a picture in

one of the catalogues representing one of the improved windmills; "the diameter of this mill is 17 feet, and it is rated at three horse-power."

"Whew!" said Jimmy; "if 17 feet in diameter will give three horse-power, then—let me see; 3's in 17 $5\frac{1}{2}$ times. Why, a windmill to give one horse-power would need to be only $5\frac{1}{2}$ feet in diameter—purty near six feet; and fer half horse-power—"

"Jimmy," said Sam, interrupting, "you are clear off your base. I should think the power of a mill would be in proportion to the number of square feet of surface."

After rummaging around, Sam found a piece of paper and a pencil, remarking, "What is the use of going to school, unless you can put it to some use?"

Mr. G., in the meantime, looked amused, and finally spoke:

"Boys, you are both wrong, though I must admit that Sam is nearer right. You must bear in mind, that the larger the mill the more purchase the wind will have upon the center; and that, while the power of a windmill is, to a certain extent, as to its number of square feet of surface, this matter of greater purchase must be taken into account. Let me see. You have not studied philosophy yet, have you? but you both know how much power you can exert on the end of a crowbar. Now if the crowbar were shortened it would give you a great deal less purchase, would it not? The proper size of the mill we can not get at, I think, by means of figures and comparison, in order to produce a given horse-power, so I think we shall have to trust to the experience of those who have made windmills. One of the manufacturers writes me that a mill 12 feet in diameter would do tolerably well for running a buzz-saw for hive-making. We will, then, take this for our basis. Supposing that a 12-foot windmill will run a buzz-saw in a fair wind, and yet do good work, we will then reason that, if we desire to use a very light-running arbor, with a thin, well-sharpened saw, and that the saw will not be crowded too hard, an 8-foot mill in a good stiff breeze will probably do *your* work."

Mr. G. then showed the boys an old *American Agriculturist*, telling all about how to make a cheap windmill, the cuts and diagrams fully explaining each part of the mill.

"Now, I want to say, boys, that this business of making windmills has generally not proven to be very profitable; but as you are so desirous, and seem so determined to make one at all hazards, I propose to let you have the necessary lumber, and you can tinker away to your hearts' content. But I don't believe you are quite mechanics enough to construct a good windmill; however, spare evenings I will assist you in some of the most difficult parts of its construction."

The following day being Saturday, when there was no school, the boys set to work with a keen zest. They worked, assisted by Mr. Green, for several weeks, nights and mornings and Saturdays. During its construction I fear their minds were on the windmill the greater part of the time, even in school hours. Sam's teacher noticed something was wrong, as he didn't get his

lessons as well as usual. Sam was called to account, but he "didn't know what was the trouble."

At last the windmill was completed, and erected on top of the barn. Every thing was finished, though a skilled mechanic could easily detect the work of a boy's hand in some parts of its construction. Mr. Green did not think it was as strong as it might be, but he thought it would do if no very severe winds should strike it. The next evening the boys waited for the wind to come up. Jimmy grew impatient, and expressed himself as follows:

"Confound the luck! if we did not want the wind to blow it surely would, and knock things all ter pieces; now we've been waitin' here fer two hours and it won't budge. I'm goin' to get up there and turn that thing around. Mebbe it needs greasin'. Perhaps if we coax it a little it will start."

So saying, Jimmy clambered up on top of the barn and thence on to the windmill tower. He turned the mill around and around, but it wouldn't coax at all. Mr. G. finally advised the boys to wait for the wind to blow, which it probably would do before evening; but this did not pacify the boys much, and so they kept waiting until they were late for school. Just before recess the teacher announced that Jimmy and Sam should stay in at recess for tardiness; that they should both come to him and report why they were late.

That evening, after school, although the boys had been called to account for misdemeanor, they bounded homeward almost out of breath. Sam, however, did feel a little mortified, both because he was called to account for neglecting his studies, and because he had never been punished before. Jimmy didn't care a "red cent," as he expressed it; "twasn't nothin' to stay in at recess." When they reached home they saw that the windmill was yet standing still, and apparently not a breath of wind was stirring.

"Ho, ho, there!" called out Jake, one of the schoolboys, just passing by, and whom the two boys particularly disliked. "That thing wouldn't run if there *was* any wind. If I couldn't do better 'than that, I'd sell out. Ye had ter stay in at recess, didn't ye?"

Jimmie was on the point of going over to "lick the stuffin out of him," but Sam's mother appeared just then. She advised the boys to wait till morning, and perhaps there would be a breeze.

To be continued April 15th.

JUVENILE LETTER-BOX.

"A chief's amang ye takin' notes,
An' faith, he'll prent it."

DAMP CELLARS AND DAMP BEE-HOUSES.

We have been having a nice winter, and plenty of snow for sleighing. We had 10 colonies last year, and they did well. We put two of the weakest of them in the cellar, and the rest of them outside, and packed them in pea straw around the outside. Bees should not be put in a cellar if it is damp, for it is

not healthy for them. We made a building for the bees, and put them in for one winter; but it was so damp and warm that they all died. Last year we got 450 lbs. of honey. Basswood was an entire failure.

ROBERT McCURDY, age 12.

Hornby, Ont., Can.

20,000 LBS. OF HONEY FROM 200 COLONIES.

My brother keeps bees. He has 200 swarms. They made 20,000 lbs. of honey last summer. I have a cat, and his name is Tip. Pa has a dog, and his name is Snider.

BERTHA KING, age 9

Bryantsburgh, Iowa.

OWNERSHIP.

My pa gave me a stand of bees last summer. He keeps them in the cellar for me. Next summer I am going to try to take care of them myself. My pa has 23 stands of bees.

Pharisburg, O. DAVID A. SHENEMAN, age 11.

See our promise to the little folks, to be found elsewhere in this department.

ASILUS MISSOURIENSIS, AS REPORTED BY A LITTLE GIRL.

It is a beautiful day to-day. The bees are out having a fine time. We have had a very mild winter here, with but few stormy days. Papa thinks this is a splendid country for bees, only, of course, being in a new country there is a lack of bee-pasture. We have one valuable bee-plant here, called the sensitive rose. In the summer the fields of the sensitive rose look like large fields of red clover. There is a bee-killer (*Asilus Missouriensis*) that troubles us a great deal. I have often seen large numbers of wounded bees creeping around on the ground, and I have caught the bee killers with the bees. They catch the bees in their talons, or fore arms, and then stick their bill in the poor bee and get the honey. You will find the exact picture of this insect in Cook's Manual, page 268.

NELLIE FAY, age 12.

Franklin, Neb., Jan. 26, 1887.

Thank you, friend Nellie. The facts you have given us are interesting and valuable. We like to have bright-eyed little girls report upon some such item as this. In the last edition of Prof. Cook's book the cut of this interesting long-named insect appears on page 317 instead of 268. We like to reward boys and girls who are able to call these queer bugs by their right names, so we send you a large panel chromo.

A JUVENILE INVESTMENT THAT PAID.

I am 11 years old, and I live on a farm. Papa said that the first swarm of bees I saw come out I could buy, and pay for them this fall; also the hive, frames, sections, etc. The bees made 64 lbs. of honey. I sold the honey for \$8.00. After I had paid for the bees I had \$3.00 left. I sold nearly all my money to papa, and got the cash in gold. Papa wants me to learn to buy and sell. I learned to clean the sections and frames, and I can put foundation in frames, and fold sections. We have no bee-house for our bees, but pack them in straw in a long row for winter. We tack an old carpet in front of the entrance, to keep it dark and to keep out the snow, wind, and cold. We do not have to disturb them all winter. We have boards in front of the chaff hives to break the wind. It was fun to climb the apple-trees and hive the rousing swarms. I can pick up a

drone in my hand. I cleaned all the sections and frames last fall. I can nail frames. I go out among the bees with bare feet and hands. I can help carry a hive of bees easily. We learned quite a lesson last summer in bee-keeping, that cost us a good hive of bees. It was a strong swarm of bees. It made a lot of honey, and swarmed three times. The last swarm had four queens. We saw them go in. The old hive was the last hive on the row, but papa set the new hive right beside of it, within about five or six feet. The new hive was just like the old one, and now it was the last one in the row. The bees in the old hive were in the habit of flying into the last hive in the row, and must have made a mistake and flew into the new hive as they came from the fields. The queens must have all gone with the last swarm, and they failed to raise a queen. They became so weak that the other bees began to rob them. We had a fine time with robbing in the apiary.

ARTHUR BOSSEMEYER.

Dixon, Ill.

Many thanks, my young friend, for your good report. The investment certainly was a profitable one, was it not? You are not only \$3.00 ahead in cash, but you have a good swarm of bees, and, more than all, a stock of experience that will be worth something to you in your future investments of this kind. These habits of enterprise we like to encourage. We will here give notice to the little folks, that our promise, as made on page 317 last year, still holds good. We there agreed to send any girl or boy, who could send in a *good* report as the proceeds of his own work, and *his own* bees, for the past season, a beautiful panel chromo. By the conditions of this promise, I think, friend Arthur, you are fully entitled to the present, and we therefore send you one. We shall be pleased to hear from other little boys and girls who can give us a report of what they did with *their own* bees; and if you sold your honey, where and how you did it.

TOBACCO COLUMN.

A CHANGE OF MODUS OPERANDI.

MY father-in-law, with whom I have spent the last month, is a bee-keeper on a small scale. He never smoked bees, but often smoked himself and other people with a pipe. Now, he has determined to change his modus operandi by smoking bees instead of people. I have every reason to believe he has abandoned tobacco for ever, for he is persecuting the weed among his neighbors with a vim that but few people can muster. Please send him a smoker; and if he ever smokes tobacco again I will pay you for a dozen bee-smokers. I am myself a "great past-master smoker," an enemy to tobacco—hardly ever known to raise a flag of truce—no, never.

ANTHONY JOHNSON.

Essex, Ia., Jan. 29, 1887.

Many thanks, friend J. We wish there were more like you.

John Trego wants you to send him a smoker to this office, and agrees, if he uses tobacco again, to pay you for it.

E. LISTON.

Virgil City, Mo., Jan. 27, 1887.

A YOUNG FRIEND HAS QUIT.

I have a friend addicted to the use of tobacco, with whom I have been laboring to have him quit, and he has finally consented to leave it off. He is a fine young man, just beginning the management of bees. I will see that you get your pay for a smoker if he takes it up again.

E. VAN FRADENBURGH
(Pastor Baptist Church).

West Fulton, Scho. Co., N. Y., Jan. 12, 1887.

HAS USED TOBACCO ALL HIS LIFE.

I used tobacco in various forms all my life until the past six months. I have now abandoned the weed altogether. I am very willing to pay the price of the smoker should I ever use tobacco again.

E. B. JOHNSON.

Manatee, Fla., Nov. 18, 1886.

I have never used tobacco to any great extent, but I have smoked cigars frequently. For over six months I have quit the use of tobacco; now, if I am entitled to a smoker, please send me one, and if I smoke again I will pay you the price of it.

Boscobel, Wis., Jan. 22, 1887.

C. V. MAIN.

I prevailed on my brother, on the 1st of Jan., to quit using tobacco, telling him you would send us a smoker free of cost. If he ever uses tobacco again I promise to pay you for the smoker.

Hillsdale, Mich., Jan. 7, 1887.

W. L. HUNKER.

Mr. Elihu Baimbridge told me that, if you would send him a smoker, he would quit smoking and never use tobacco again. If he does he will pay you for the smoker.

A NEIGHBOR.

Farmington, W. Va., Feb. 5, 1887.

Mr. M. M. Jones, one of my neighbors, has quit the use of tobacco. He quit the last of September, and says he never intends to use it again; and if you still give a smoker, please send him one as a reminder of his resolution. He has used tobacco for many years.

R. L. PATTEN.

Cooper Sta., N. Y., Feb. 1, 1887.

Thanks, friend P. The more neighbors you induce to give up the weed, the better.

Please send me a smoker for quitting the use of tobacco. If I ever use it again I will pay you for two.

FRED BASSETT.

East Kendall, N. Y., Feb. 8, 1887.

I used tobacco for ten years, but have not used any for three months and I do not think I shall ever use any again. If you will send me one of your smokers, and I commence using the weed again, I will pay you for the smoker.

HENRY REINHEIMER.

Callicoon, N. Y., Feb. 7, 1887.

I was telling my neighbor, Mr. Green, that you would give a smoker to every man who would quit using tobacco. He has quit, and promises to pay for the smoker if he ever uses tobacco again, and I will vouch for it. He has used tobacco for a number of years, and is confident that it does him a great injury. His old father has quit using tobacco. He has used it since he was a boy. He does not ask for a smoker. His health is better than it has been for a good many years.

Fleetville, Pa., Feb. 8, 1887.

C. D. FARNHAM.

OUR HOMES.

Then Simon Peter answered him, Lord, to whom shall we go? thou hast the words of eternal life.—
JOHN 6: 68.

SOME of us are great talkers. We express every thought and feeling by our words. Others talk very little. They may suffer keenly, and you would hardly know it, or they may feel joy, and give little expression to it. I have sometimes thought, however, that where one is in the habit of using but few words, these few words often carry the greatest weight with them. Sometimes half a dozen lines express more than pages could tell. It is to half a dozen printed lines that I wish to call your attention in this Home Paper. I have read these half-dozen lines over and over again, and each time I read them that old prayer of mine comes up of itself, "Lord, help." Here is the letter:

Friend R:—GLEANINGS came to me yesterday, and found a solitary bee hovering over the coffin-lid of my darling, darling wife. Oh, tell me! can there be any sweetness amid all this bitterness?

Yours in sorrow,

G. C. STOKELY.

Arnoldville, Ind. Terr., Jan. 14, 1887.

The plea goes up for help, not for myself, but for our suffering brother. The lines themselves at first glance tell very little; but as I read them over they seem to say to me something like this:

Our friend has been a bee-keeper. He has been in the habit of sharing the joys and pleasures of bee culture with the companion of his home—with a companion given him by God—sent him by God, as it were, to make his life happy and pleasant. According to the commandment which God has laid down in his holy word, they twain had become one. What a beautiful partnership is the relation existing between man and wife! We all crave companionship; and if there be one in the world who can find happiness without the companionship of a single human being, he is an exception to the general rule—a sort of abnormal human being. There are those who may content themselves a while off alone; but sooner or later they want somebody to talk to—somebody for company. And what more beautiful relation can there be than the relationship between a good man and a good woman? The marriage-rite tells how it is—they are to help each other, to cheer and encourage each other, and to study each other's happiness; and as the years go by the attachment is to become stronger and stronger, and they are to become more and more unselfish, each one losing sight of self in making the other happy.

Some little time ago, Maud and I were visiting one of her old college schoolmates. This schoolmate was united to the man of her choice, and they had just moved into a neat little cottage of their own planning and building. He was thinking and talking of his wife most of the time, and she was thinking and talking of her husband most of the time—not in a silly way, but like two good pure-minded people, or, if you choose,

a good and pure-minded boy and girl. The sight was a pleasant one to me. At the table, I was, of course, asked to give thanks; and while doing so my heart was filled with the thought of how much these two had to thank God for. As we were about to retire I made the remark to my young friend, "Did it never occur to you, friend—, that a good pure woman is the greatest blessing that God ever bestowed on man?"

His countenance brightened up at once as he took in the thought, and replied, "Indeed it is, Mr. Root; and I believe you are right, that the greatest gift God ever bestowed upon man was woman."

Let us now go back to the letter. GLEANINGS has been a welcome visitor in that household. Possibly they two have sat under their humble vine-covered porch, and looked over its pages. May be they have together "got acquainted" with A. I. Root through its pages, and, possibly, learned to love him just a little; but may God grant, that through him they have learned to love the Savior more! Well, a number of GLEANINGS comes as usual on one of its semi-monthly visits. The weather is warm in Indian Territory, even during the middle of January—at least, warm enough so the bees are out a little. Perhaps the hearts of these two have oftentimes been cheered by the little winged busybodies in the depth of winter, and there is nothing very strange in the fact that a solitary bee was buzzing about when this number of GLEANINGS was handed in, right from the postoffice. The sight of GLEANINGS, as well as the solitary bee, might bring a thrill of pleasure to our friend's heart at any other time, but how is it now? Where is that bright, cheery, joyous inmate of his household now? In scarcely more than a line he tells us of the sad, sad story. Probably attracted by the varnish of the new piece of woodwork, this solitary bee has called. It is only a simple piece of wood covered with newly applied varnish. But what a story it tells! It is the *coffin-lid* of the darling wife—the great gift that God gave to friend S. has been suddenly called away. As I read the lines over, and realized that it is possible—nay, quite probable—that I may have to go through such an ordeal, up comes that old prayer again, "Lord, help!" Lord, help me when I shall be called upon to endure a trial like this! As I think of it, I feel weak and cowardly. For a little time I begin to wonder whether even the religion that I taught so earnestly would help me to be trustful and manly, were I tried as friend S. has been tried. May God forgive my want of faith and my human weakness when I contemplate such a trial! My mind runs back to the old days of more than a quarter of a century ago, when I first began to get acquainted with the priceless gift God had then in store for me. I remember our foolish, childish actions when we first began to get acquainted. I remember the hours and hours that we wasted in trivial things. *Were they wasted, dear reader?* I am almost afraid, if I should see two young people now doing the same thing I should be tempted to say they were wasting their pre-

cious moments. But how do you know that it was not laying the foundation for this sacred relationship? It takes a good while, my friend, for a man and woman to know each other perfectly.

A few days ago we were studying the Sunday-school lesson where it told of Abraham and his son Isaac. My wife asked the question, "Wasn't Isaac frightened when his father was making preparations for that sacrifice?"

I replied, "The father trusted God. The boy was a 'chip of the old block,' and trusted God, and also trusted his father. What his father had decided to do, he knew by years of experience was right; both father and son were preparing to obey God, fearing naught."

"But," said my wife, "have we any illustrations nowadays of such a faith as that?"

I replied, "How about yourself and your four-year-old boy? Do you suppose that any thing you could do would frighten him?"

She replied, "To be sure, it would not, for he *knows* his mamma, and his mamma *knows* him." And she turned to him lovingly. Now, one of the most beautiful sights in this world, to me, is the love between mother and son. Boys, especially small boys, need a great deal of mother, and they get it too. I have often thought of it; I have often watched the looks of love and confidence and faith that passed between the two. The little man tells by his look that he loves his mother more than all else in the world—more than all the world together, in fact. Father, brothers, and sisters may be near, but none of their names have the fullness of that endearing sound, *mother*; or, if you choose, "*my ma*." The mother, too, for the time being—at least while the boy is in his dresses, perhaps just getting ready for different clothes and a different field of action—getting ready, as it were, to go out into the world—during this period the mother's whole soul and all the capabilities of her nature are poured out on this boy. Now is the critical period. If he loves and *obeys* his mother now, he will probably not only love and obey her always, but he will love and obey God also. The love the mother has for the father is a different kind. The father can take care of himself; but the child's whole future life, almost, depends upon her. God has given this embryo man into her care and keeping, and God holds her responsible.

Please bear with me, friends, if we study a little further this relationship between parent and child—between a good mother and a child who loves this mother, and has implicit faith and confidence in her. It is sometimes the duty of the mother of our little home to punish our four-year-old boy. Now, does this punishment break the union of faith and confidence that exists between them? By no means. He seems to recognize, as it were, that the punishment is necessary. I have seen the conflict going on in his little heart between good and evil, and I have seen him put his little arms about mamma's neck, almost before the tears were dried, and say by actions, if not by words,

that: he has no other friend in this wide world like that mother; and on her part, when she punishes, that the great absorbing love that she has for her boy is in no whit abated. It is on account of that love that she punishes, and because she has prayed for him, and is praying in her heart, that she does it. Present ease is nothing to her, compared with the great broad future. She wants him to be a good man—an evenly balanced, intelligent, and useful man; and she knows he can not be this if he goes through life crippled by an uncontrolled evil temper or selfish and evil impulses. Sometimes when he is talking with me he tells me of these conflicts. His childish words are something like this:

"Ma punished me, she did."

"Why, papa is real sorry to hear that. Why did mamma have to punish her boy?"

"Cause, I was naughty."

"Well, you are not naughty now?"

"No, I am good boy now."

You will notice from the above, that there is no unkind feeling—no thought of disputing the mother's right. His faith and confidence in her are so great, that, even if he did not understand it entirely, there would be no hard feeling toward his own mamma. We don't always know what is going on in these little hearts. Sometimes we totally misunderstand; and if there is any place in the world where we need to have great charity and much forbearance, I think it is in the care of children. Mamma once asked me to talk with Huber when he seemed to be stubborn and willful. For quite a time he did not reply, and I began to think he would have to be punished. Finally I thought I would see if I could not win his confidence, and get him to tell me his *reasons* for his misconduct. At length he made a statement that seemed to me so unreasonable I decided at once he was untruthful. His childish heart grasped the idea, and he looked me full in the face while he repeated his statement, and ended it with a phrase he had probably heard some of the children use—"In 'honest troot' I *don't care*, pa." He seemed to be grieved, and to be in real trouble and almost anguish because his papa did not believe him. Then I saw that the misunderstanding and stubbornness were all explained by the fact that he had a wrong understanding of the meaning of some of the words he had been using. But I had caught a glimpse into that little soul, and I understood him perfectly. He meant, "I *didn't mean* to." I presume I shall always remember it, and the way he looked up to me as he said, almost with a sob, "In honest troot."

Now, friends, what a sad and grievous thing it is for a parent and child to misunderstand each other. Friends are sometimes estranged by misunderstandings, and by being in haste to conclude that the other has deliberately committed a wrong. Such things are sad; but to misunderstand a child, and to scold him when he is not guilty, is a grievous thing. When punishment is added to the little innocent unconscious offender, it is sadder still. Such things usually come about by want of faith

and confidence in each other. Misunderstandings between parent and child are sad to contemplate; but, my friend, they are sadder still when they arise between husband and wife. If the relationship between those whom God has joined together is a beautiful one, how very sad is the contemplation of misunderstandings and hard feelings between these two.

The few brief lines in our afflicted friend's letter tell us the relationship between him and his wife was of the kind I have tried to picture. Harmony and happiness—perhaps the greatest happiness God has given to mankind—was theirs, and now she is gone. God has called her home, and left our friend sorrowful and alone. And now for the last line of that letter. Bowed down with grief, and a grief that seems to have blighted the whole of his nature, our friend breathes forth this wail, wrung from his heart by the keenest anguish. Can there be any sweetness amid all this bitterness? Dear friend S., I can not promise you that all at once this load of sorrow shall be lifted; but we can promise that there will be sweetness come out of it—perhaps a higher and purer joy and peace than you have ever yet known; but it must come through submission to the divine will. Remember, dear brother, what it was that brought forth those immortal words—"Thy will, not mine, be done." It was the Savior who uttered them in contemplation of the trial he was about to undergo. He prayed that the bitter cup might pass away, but ended the prayer, "Nevertheless, not my will, but thine, be done." Let no murmuring thoughts enter your mind. Beware of looking about you and comparing your lot with others who have not thus been called upon to endure such trials. Put your trust in God, and bring your grief to the feet of the Savior; even though you may not understand the reason of all this, dear brother, do not question or waver. Let your relation and your trust be like that which I have tried to picture between husband and wife, or between mother and child. Say to yourself over and over again, "He knows best;" "it is the Lord."

For your encouragement, let me tell you of some cases I have known. When my father was taken away every one was astonished to see my mother bear it not only patiently but almost triumphantly. Although several years have passed, even now there is no subject on which she can converse—no subject that seems so bright and full of happiness to her—as that of his death. People talk about the loved ones having only gone on before; but in her case it is a reality. She speaks of it as something to rejoice over. He is in glory, and she will be with him soon. Many people, even her own children, thought it was unnatural, and they thought there would be a reaction soon; but no reaction has ever come. Again, a few months ago one of the young men employed in our factory died suddenly. Nobody thought of such a thing as his slight sickness being fatal. A messenger came to me while I was in jail, Sunday afternoon. I was stunned and bewildered by his words—"Mr. Root, N—W—

is dead." I started at once, wondering how I could comfort the grief-stricken parents. Their eyes were full of tears; but I was surprised to see smiles shining through the tears. The mother seemed even happier than I had ever seen her, and I have known her for many, many years, and, thank God, she has always been a trusting, faithful disciple. The joy that shone forth from her face was caused by the fact that, with his last words, he told them he was resting in the Savior's arms, and why should they lament or be cast down? His experience had not been as bright as that of some others, and he was not much given to talking, especially on such subjects. His words were mostly brief, like those of our poor friend who writes the letter. When he came to die, the few brief sentences he spoke to his mother as he breathed his last had enough of heaven in them to make her rejoice for the rest of her life. I have talked with her since, but she always makes me ashamed of myself, because her faith is so much brighter and stronger than mine. "Why should I be sad or sorrowful?" she says; "I have prayed for him these many long years, and now in a strange and unexpected way God has answered the prayer. He has taken him home, to be with the Savior, and he is safe—safe through all eternity; why should we lament?"

The mother punishes the child because he has been disobedient. We can not always say, however, that God punishes us because we have been disobedient. In fact, Christ's own words declare most positively that misfortunes and afflictions and grievous trials are *not* sent to those who are most sinful.

And Jesus answering said unto them, Suppose ye that these Galileans were sinners above all the Galileans because they suffered such things? or those eighteen upon whom the tower in Siloam fell, and slew them, think ye that they were sinners above all men that dwelt at Jerusalem? I tell you, Nay; but, except ye repent, ye shall all likewise perish.—LUKE 13: 2, 4, 5.

Therefore, dear friend S., we have no right to presume that you have in any way been remiss. We all must meet death, and we must all part with our loved ones, sooner or later. The rain falls upon the just and upon the unjust. The only important thing in this life is to have that full and perfect trust in God I have tried to tell you about. The little one I have used as an illustration shows by his actions, "I love my ma, even if she does punish me;" and we should say, in the language of the old patriarch Job, "Though he *slay* me, yet will I trust in him." This trust should in no sense prevent us from doing all in our power to avert calamity and affliction. We know, dear friend S., although you have not told us, that you did all in your power to save the life of the darling wife who is gone. But this matter of life and death is beyond our control. The best physicians the world affords have admitted their helplessness over and over again. Death, like the winds and waves, is in the hands of the almighty Father. At his word they obey; and he only can kill and make alive.

We are not told that the old patriarch Abraham was filled with peace and joy as

he started homeward after that wonderful journey off into the wilderness with his son Isaac; but we are told that God was exceedingly pleased with him when he had tried him and found him faithful; for he says, "For because thou hast done this thing, and hast not withheld thy son, thine only son, that in blessing I will bless thee, and in multiplying I will multiply thy seed as the stars of heaven, and as the sand which is upon the seashore. And in thy seed shall all the nations of the earth be blessed, because thou hast obeyed my voice." Friend S., I don't even know that you are a Christian; but somehow I feel, from your brief letter, that you are, in any case, not far from the kingdom of God. I have sometimes thought that great affliction brings men into the kingdom when nothing else would. Skepticism and infidelity have nothing whatever to offer you. A young man who was quite talented, and who had studied pretty deeply into skeptical writings, said, in our young people's prayer-meeting, not very long ago, "If there is any thing in this world that is unsatisfying to the soul of man, it is skepticism and infidelity. These writers would take away every hope—knock out every prop, and leave the hungering and thirsting soul in a vast sea of doubt in unbelief, and in place of what they have taken away they give nothing—*absolutely nothing*." These may not have been his exact words, but they were the substance of them. The only thing that is satisfying amid trials like these is the gospel of Christ Jesus. It says, "Come unto me, all ye that are weary and heavy laden." Poor Peter was right when he spoke the words of our text. At that time the multitude seemed to decide that the teachings of Jesus were too strict and exacting; they cut off too many things that the Pharisees delighted in. The path was too straight and narrow, and the people turned away. Even many of his followers, we are told, went back and walked no more with him. Jesus turned to the twelve—the tried and the faithful ones—and in sadness said, "Will ye also go away?" Peter, outspoken and ready as he always was, made haste to answer: "Lord, to whom shall we go? Thou hast the words of eternal life." And I pray you, dear brother, in the name of Christ Jesus, to cast your burdens on the Lord. He, and he only, has the words of eternal life. No other one in the wide universe can speak peace to the one who stands where you do. Since the world began, no one except those who came in the name of Christ Jesus have been able to bring solace and comfort to the dying-bed. Yes, there is sweetness for you. The peace that Christ can give is yours for the taking; and the promise of eternal life may be yours if you will accept it as a free gift, and the promise of again seeing the loved one beyond the grave. It is true, God's holy word does not tell us very much as to what the future shall be; but those who study it diligently will find promises that are every thing the human heart can ask for. If Jesus, on the mount of transfiguration, talked with Moses and Elijah, why shall not we meet face to face,

and talk with the loved ones who have gone before? Christ is the way, the truth, and the life. And there is no other way that ever has been opened, or that ever will be, to poor humanity, when called upon to endure the trials and afflictions of life.

In II. Corinthians 9:7 we are told that "God loveth a cheerful giver;" that is, he is pleased with those who submit in humble obedience to his decrees; and to be cheerful givers we must have that loving faith and trust. We read, also, that Abraham believed God, and it was counted unto him for righteousness. Skepticism may tell you there is no remedy for trials like these; infidelity says there is no escape—no opening—no help in this wide universe; but I tell you, friend S., there is hope, and there is a remedy. God, who gave this gift, still rules the universe, and he is still a loving Father. It is not probable, it is not likely, it is not reasonable, that the Being who planned this universe as we see and comprehend it should plan such trials as yours, with no opening and no escape. God the Father wants us to look away from these things toward him. The first of the ten commandments reads, "Thou shalt have no other gods before me," which is, in effect, "I am to be first and foremost in the affections of my children. I am the beginning and the end, I am over all." The invitation to come to him and to seek him in trouble as well as in joy rings forth clear through the whole Bible. "Like as a father pitieth his children, so the Lord pitieth those that fear him."

Now, my dear friend, it is not true that God has left you uncared for. Jesus tells us that not a sparrow falls to the ground without God's care; and, again, he tells us that God so loved the world, etc., as you have probably read over and over again. He has not forgotten you. He is not unmindful of your sorrow, but he is ready and near. In the very last words of the Bible we read, "And let him that is athirst, come; and whosoever will, let him come." I pray you, my dear friend, let there be no misunderstanding in your heart; let there be no doubt, no want of faith. Say on your bended knee, "Here, Lord, am I, a poor grief-stricken, cast-down child of thine. Here am I, feeling that the light of the world has gone out. Have mercy on thy poor stumbling and doubting servant. Take thou me into thy care, and keep and help me to say from my heart, 'Thy will, not mine, be done.'" And, dear brother, if you can say it, try to add, "Tell me, I beseech thee, what thou hast for me to do in this world. If it be thy will, I will try to be happy again in trying to make others happy. Take me as I am, and teach me thy ways." In the little book used by Moody and Sankey there is a hymn composed by one who, like yourself, saw nothing left on earth to live for. She sat down in helpless sorrow, and apparently gave up. In fact, so great was her grief that she begged God to take her out of the world. The little hymn is apparently his answer. It was written after she found joy and peace, and probably greater happiness than she had ever known before—

probably greater happiness than she could ever have known had the loved one been spared to take all her thoughts and attention. Yes, it is even probable that, had he lived, he might have taken her thoughts away from her Creator. Here are the lines:

Not now, my child, a little more rough tossing,

A little longer on the billows' foaming;

A few more journeys in the desert darkness,

And then the sunshine of thy Father's home.

Not now; for I have wanderers in the distance,

And thou must call them in with patient love;

Not now; for I have sheep upon the mountains,

And thou must follow them wherever they rove.

Not now; for I have loved ones sad and weary;

Wilt thou not cheer them with a kindly smile?

Sick ones, who need thee in their lonely sorrow;

Wilt thou not tend them yet a little while?

Not now; for wounded hearts are sorely bleeding,

And thou must teach those widowed hearts to sing;

Not now; for orphan's tears are quickly falling,

They must be gathered 'neath some sheltering wing.

Go, with the name of Jesus, to the dying,

And speak that name in all its loving power;

Why should thy fainting heart grow chill and weary?

Canst thou not watch with me one little hour?

One little hour! and then the glorious crowning,

The golden harp-strings, and the victor's palm;

One little hour! and then the hallelujah!

Eternity's long, deep thanksgiving song!

think it over calmly you will find your old friend has some redeeming traits after all. I do not believe we are really greedy. We like to have things straight and square, and have an understanding, but we surely do not want a single dollar that rightfully belongs to you or to any other brother. Now, after thinking the matter over, don't you believe you have been just a little rough on your friends at Medina?

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,

EDITOR AND PUBLISHER,

MEDINA, OHIO.

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For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1887.

Every one that hath forsaken houses, or brethren, or sisters, or father, or mother, or wife, or children, or lands, for my name's sake, shall receive a hundredfold, and shall inherit everlasting life.—MATT. 19: 29.

THE DESCRIPTION OF THE NEW FACTORY, ETC.

A PART of the above was written by Ernest and a part of it by myself—or, rather, I have put in a paragraph here and there. Those who are expert in such matters may be able to pick out the portion dictated by myself and that dictated by Ernest.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

OUR friends will notice that the above is not given in this issue. One reason for its omission is, that there seems to be more interest in other matters just now, so we have occupied this space with matter pertaining directly to bee culture. Another reason is, I have felt as though I needed more practical experience myself, before attempting to teach others in some of the lines I have proposed taking up. The book, as far as it has gone already, (128 pages), will be furnished by mail, bound in paper covers, for 75 cts.; if ordered with other goods by freight or express, 70 cts.

We are pleased to notice "*The Bee-Keeper's Record*," published in Scotland. It is conducted by W. B. Carr and William Raitt—the former of Cheshire, England, and the other of Blairgowrie, Scotland. We are a little surprised to find it in its fifth volume, and we don't remember that we ever saw a copy of it before. It seems to me our old friend Raitt is a little backward in letting the world know what he is up to. In a word, the *Record* is a very neat and interesting journal of apiculture, and we consider it quite an addition to our bee-literature. The subscription price is 2s. 6d per annum. We presume that either of the above friends will be glad to receive subscriptions from America.

TERRY'S POTATO-BOOK—THE APPENDIX.

This appendix is now printed, and has been mailed to all purchasers of the Potato-Book. Although it cost us altogether something like \$50.00, it is added to the Potato-Book without any further increase in price; viz., 35c, or 38c if ordered by mail. The

GROWLERY.

SOMEbody has complained that we don't have any more Growlery lately; that is, we put in all the kind words and kind notices that we get, and don't give anybody a chance to speak at all when things are not as they should be. Well, I don't know but I shall have to plead guilty, but it has not been from a disposition to misrepresent, but because of neglect; and, in fact, we have only two letters suitable for this department, and they are quite old at that. Here is the first:

If you have not shipped those crates I ordered, you need not send them. You were too slow. I could get four orders from Mr. Newman, of Chicago, while you send one. Please send me the money, and I will not bother you with another order.

W. A. ZIEGLER.

Logansport, Ind., June 24, 1886.

Whew! If the above is a tremendous clip at A. I. Root, it is a pretty good recommendation for Bro. Newman, at the same time. And this reminds me, that there are few people who do business, of whom we hear as little complaint as of our friends of the A. B. J. Now, friend Z., your order was received June 14, right in the very height of the season, and your goods were shipped on the 24th. I know that ten days is almost too much, but it seems to me it is not so very bad after all: Here is the other:

I find a notice on last GLEANINGS, that you like to have another dollar. Well, you can't have any more of me, because you are not gentleman enough. You are all too greedy. Stop your GLEANINGS! I am sorry I ever had any thing to do with you. You are all money.

P. DIEHL.

Durand, Wis., July 4, 1886.

I will explain to our readers, that friend D. was displeased because a compositor set his name wrong in the subscription-list; and the consequence was, he got a dun when he did not owe us any thing. Now, friend D., I am exceedingly pained to hear you say you wish you had never had any thing to do with us. May be, after you

appendix considers cheap potato-diggers and high-priced potato-diggers; having growing crops such as rye and clover on the ground every month in the year; how to raise potatoes without either hoe or harrow; the potato-blight of 1885; the bes. knife for cutting potatoes, after two years of trial; the \$25.00 disk harrow; additional thoughts in regard to seed potatoes. It comprises eight pages and three illustrations. The potato-book has had a wonderful sale, and seems to please remarkably. Many reports are now coming in from those who have made a success by following the teachings of this little book. Here is one just at hand:

Please send the supplement to Mr. Terry's A B C of Potato Culture. With the aid of this book I raised from one-half bushel of seed, 35 bushels of fine Peerless potatoes, many weighing two pounds apiece. I could pick five bushels with no potatoes under one pound. I prepared the soil thus: First, plow; after that spread manure from the stable; then harrow. The manure mixed better with the soil being spread after plowing. After good harrowing, then follow with a plow, and harrow again. I am 68 years old, and one-legged. If I can do it, any one else should who is sound in limb, and not crippled in mind. P. C. BLUHM.

Smithville, Tenn., March 7, 1887.

Here is one more, that comes from Sweden:

As for the A B C of Potato Culture of Mr. Terry, I dare say, all the world has to be thankful to him. It will revolutionize the way of cultivating this crop. In the last year several people in this country have tried it, and received a crop by it 1-7 more than the largest told of in the A B C. It is just enormous. H. STAHLHAMMAR.

Gothenberg, Sweden, Jan. 27, 1887.

ECONOMY IN DOING EVERY-DAY TRIFLING DUTIES.

How often we do things by laborious hand-work, when a very little ingenuity would devise a simple machine for doing it in one-fourth of the time, or less! In a large factory this is almost continually coming up. Just now one of our shorthand writers is greatly crowded; and while thinking about economizing her time I noticed that it took her quite a spell in the morning to whittle her leadpencils. It is true, there are pencil-sharpeners in the market, but she says they are not practical. I took two dozen pencils in my hand, and in a few minutes the foreman of our saw-room had fixed a sand-paper wheel so as to whittle them beautifully, about as quickly as you could pick them up and lay them down again. When the two dozen need sharpening, we propose to go over them again, and so on. A great many times I see quite expensive hands, or sometimes a very valuable boss carpenter, waste his minutes by whittling a pencil. My friend, if you are called upon to employ high-priced workmen, see to it that they are not required to use the time in such like trifling duties.

BEE-JOURNALS BOOMING THE BEE-BUSINESS—IS IT RIGHT AND PROPER?

In my opinion, it is not right and proper for any industrial journal to present only the bright side, and urge everybody to go into said business, in order that they may get subscribers and sell supplies. Catalogues of things that manufacturers or producers have for sale are expected to present the encouraging features of the industry, or of their special wares; but industrial journals should give all sides of the subject—encouraging and discouraging. They should meet fairly and squarely every difficulty in the way. Whenever I have an opportunity it is a pleasure to look over the medical journals of our land. These journals are published for the express purpose of assisting and enlightening the medical fraternity; but, do they try to induce *everybody* to hang up a shingle, and start out as a doctor? Of course, not. What an idea! Well, I believe our bee-journals should be conducted much in the same way. Of course, more peo-

ple go into poultry, bees, etc., as a rule, than into medicine; and in view of the fact that a great many, when they find themselves properly situated, feel like keeping a few bees or chickens, our poultry and bee journals should meet this want; but I am sure that none of us wish to lead people into disappointment, but, on the contrary, we wish to give a fair understanding of these industries to all who may care to inquire.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE CONDITION OF OUR BEES; CHAFF CUSHIONS, ETC.

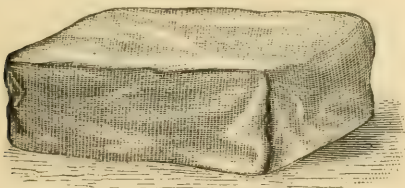
SOME of our readers seem to be anxious to know the *exact* condition of our colonies; to what extent brood-rearing has commenced; whether foul brood has made its appearance for this season. The weather being warm and spring-like on the 9th and 10th of this month, we critically examined all the colonies. In the previous issue, we stated that we pulled up one corner of the burlap, and looked upon the clusters of all the colonies; but we did not then pull the colonies apart. I did not then, and do not now, think that it would have been any advantage to pull the colonies all apart, as they were in such nice, compact clusters. Subsequent examination has shown that hardly half the colonies have commenced brood-rearing, so that I think we should have found very little brood. By "hefting" the frames too, we knew that the bees were not running short of stores. Now, after having gone over the apiary the second time, and examined every comb, I doubt not that our readers are waiting to know whether foul brood has reappeared. I wish I could say that no trace of it had developed; but I am compelled to inform our readers that a very bad case of the disease was found—I think, perhaps, as bad as any I have yet seen. I judge they must have commenced rearing brood along last February. The diseased brood was well advanced, and the characteristic odor from the hive, as soon as we opened it, was unmistakable. An examination showed that the combs were badly diseased. We found this colony among the first that we examined, and this state of affairs certainly was not very encouraging at the outset. Myself and two of the men then set to work in earnest, determined to discover any more traces of foul brood if there were any. After a vigilant search through the entire apiary on the following day, we found that all the rest of the colonies were sound and healthy; and, as we had confidently hoped and expected, not one of them has died from wintering. Had it not been for this one aggravating case of foul brood, we should have reason to feel greatly rejoiced, although we are well aware that we may lose some yet.

Now, what did we do with this one case of foul brood? We did just what we would advise anybody else to do who feels confident that there is *only one* diseased colony in the apiary; that is, we burned the hive and all.

We left the foul-broody colony till evening. The air being then nearly at the freezing-point, we pulled off the hive-cover, the chaff cushion and all the other covering, from the bees, leaving them exposed to the freezing air. Our reason for doing this was that the bees might become so chilled as to render them unable to fly while being conducted to the boiler-furnace. On the following morning I went down a little after sunrise, and expected to find the bees pretty well chilled. Not so. As I advanced to take out the frames, a couple of surly little fellows struck me in the face. However, I picked up several frames as quietly as possible, being careful not to cause the bees to fly into the air, and threw them into the boiler-furnace, where their fate was very soon sealed. I had to make two trips in order to take all the bees. While doing so I observed that three or four bees, possibly a dozen, flew into the air. As I felt somewhat apprehensive that they might return to other hives in the immediate vicinity of the one I proposed to take away, I allowed the diseased chaff hive to stand in its location during the day. Of course, I expected the flying bees to return to the old location, which I discovered they did do the following evening. I then consigned the hive and all to the flames. Had I taken away that hive as I have done on previous occasions, I feel sure that they would have entered other hives, and so would have communicated the disease to three or four more colonies neighboring and adjacent to their own hive. This is not mere theory, for sad experience has taught me the truth of this statement.

CHAFF CUSHIONS.

We believe our readers have never seen a good cut of the chaff cushion, which we use and like so well in our apiary. Our engravers have taken the pains to make a correct picture, and here it is:



CHAFF CUSHION FOR THE TWO-STORY CHAFF HIVE.

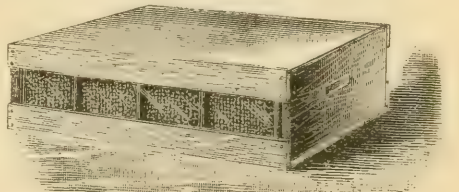
The covering is burlap. You notice that it is made square, so as to fit tightly and snugly in the corners of the hive. This we regard as important, as it prevents cold drafts of air from circulating down into the brood-nest. These chaff cushions should be filled so as to be comparatively loose, as seen in the engraving. If they are filled too full they will present a convex surface on both top and bottom; and the corners, in consequence, will be drawn out so as to leave an air-space in the corners of the hive. We believe, from our observations this winter, that too much tightly packed chaff is rather a detriment than an advantage, because it does not allow the moisture to pass off as readily. Those who desire any further in-

formation in regard to this chaff cushion, and how to make, we would refer to the A B C book.

T TINS. AND IS THERE ANY LIABILITY TO BEND OUT OF SHAPE?

I have seen it suggested in one of our journals, that one very great objection to them was that the T tins were liable to get bent. I feel pretty sure that, if the parties who offer this objection would try by actual experiments the strength of the T tins they would never again say that the tins were fragile. To test the matter we took two T tins and placed them in such a way that their ends rested on a couple of projections. A weight was attached so as to draw equally on the center of both. A light weight was first used, and increased as it was found that they would stand the burden. At 80 lbs. weight the tins bent sideways but not downward. If the T tins had been fastened so they could not have sprung to one side or the other, the same as in the T super, I think they would hold nearly double that weight.

Now, then, all the weight that each T tin is required to hold in actual usage can not be more than 6 or 7 lbs., and I think that no amount of ordinary usage could bend them out of shape, as the test above shows that each T tin would hold 40 lbs. and more before giving way.



SINGLE-TIER CASES AND THEIR ADVANTAGES.

As there has been a great run on the single-tier shipping-cases, we have had our engravers illustrate what we call our 24-lb. single-tier shipping-cases. Our readers will perhaps remember, that about a year ago we gave a cut of what we called the 12-lb. single-tier shipping-case. The former is designed to take the place of the 24-lb. double-tier case which we have now discarded, though we still sell the 48-lb. double-tier case. For the benefit of some of our new readers, I will reiterate a few of the points named in favor of the single-tier case:

First, the N. Y. commission men recommend them. They are much lighter to handle, and, in consequence, are much less liable to breakage during shipment. Moreover, a single-tier case of honey is much more salable, for the reason that it shows off the honey to better advantage than the double-tier. In the former, only the central and best portion of the honey is exposed to view. Furthermore, the double-tier case is open to the objection that, if any of the top row of sections become daubed, the lower ones will become soiled with drippings.

If any of the readers are desirous of knowing the price of any of these implements, we would refer them to our list.

SPECIAL NOTICES.

MAMMOTH SWEET CORN.

We have raised such a fine crop of this seed, which has been carefully dried by steam heat, and kept warm and dry, even up to the present time, that we are prepared to make the following low rates on it until the seed is exhausted: 1 pint, 5c.; peck, 75c.; $\frac{1}{2}$ bushel, \$1.25; one bushel, \$2.25. If wanted by mail, add 15c per pint.

REDUCTION IN THE PRICE OF WHITE DUTCH CLOVER-SEED.

We have reduced the price of white Dutch clover-seed to \$10 per bushel; \$5.50 for $\frac{1}{2}$ bushel; \$3.00 per peck; 22 cents per pound. This is one of the staple honey-plants, and we take pleasure in giving you the above prices for the seed, which is much lower than we have ever furnished it before.

THE WARNER CHAIN AND SCREW ATTACHMENT FOR SAW-TABLES.

We have received so many inquiries in regard to this improvement on saw-tables for hive-making, illustrated in Feb. 15th GLEANINGS, page 154, that we write this to let you know we can furnish the attachment, with 10 feet of chain complete, for \$5.00. This can be attached to almost any saw-table, and will greatly aid you in keeping your gauge set in the right place.

THE LADIES' FRIEND AND GOSHEN CARPETS WEEPERS

By a misunderstanding with the manufacturers, we have offered the above at a less price than we ought to have done. Hereafter the Ladies' Friend will be \$2.00, and the Goshen sweeper \$3.00 each. On two sweepers, however, we will allow a discount of 5 per cent; three sweepers, 10 per cent; six sweepers, 20; and for twelve sweepers, 33 $\frac{1}{3}$ per cent. The orders may be made up of either kind or both. The World sweeper will be sold for \$1.50.

MAPLE SYRUP.

We have now in stock toward 100 gallons of the finest maple syrup I believe we ever handled. A part of it is made with the ordinary boiling-pans, and another part by the improved evaporators, such as Prof. Cook describes. As there are some people who prefer syrup made in the old way, we have decided to put the price at the same figure; viz., \$1.10 per gallon, package included. In lots of 5 gallons or more, to be shipped in our 5-gallon cans for shipping honey, \$1.00 per gallon, package included; 10 gallons, 5 per cent off; 100 gallons, 10 per cent off. Samples of both will be mailed free of charge on application. Each can will have our label, and the label of the owner of the sugar-bush where it was made. As each man is anxious to build up a trade on the quality of his syrup, they are all going to try hard to see who can furnish the best. We have also in stock

FINE MAPLE SUGAR,

Put up in four grades—7, 8, 9, and 10 cts. per lb. In boxes of about 50 lbs., $\frac{1}{2}$ cent less than the above prices; in barrels of about 250 lbs., one cent less than the above prices.

A NEW BOOK ON MARKET-GARDENING.

W. W. RAWSON, of Arlington, Mass., has just put out a nice little book, "Success in Market-Gardening, and Vegetable-Grower's Manual." It is a book of 208 pages, and very fully illustrated. You will remember, that it was Mr. Rawson's establishment I visited last summer. While quite a portion of the book is, in many respects, similar to Peter Henderson's Gardening for Profit, there is a good deal in it that has never appeared in any other work. For instance, Mr. Rawson is the first man of whom I know who has made irrigation a success and a paying investment, in the Eastern States. He is truly a market-gardener on a large scale, and probably has more capital invested in the business, and sends a larger product to market, than any other one man in the world. The book ought to be worth all it costs, to any one in the business, no matter how well he may be posted, because it enables him to compare these methods and results with his own.

The price is only \$1.00, postpaid, by mail. If wanted by freight or express, we can furnish it for an even 90 cents. The work is exceedingly practical. Mr. Rawson tells us what he has done and what he is doing, and not a rehearsal of matter already to be found in other books. There is nothing in the book that has been copied from other writers.

CIRCULARS RECEIVED.

The following price lists have been received at this office:

- Will Ellis, St. David's, Ont., Can. Samples of nice fdn.
- F. F. Graves, Waterville, Me. A 9 page list of bee supplies.
- M. S. J. M. Reuter, Columbus, Neb. A 4 page list of bees and queens.
- E. M. Yeomans, And-over, Ct. A 5-page price list of bees and queens.
- C. W. Costellow, Waterbury, Me. A 11 page circular of bee supplies.
- R. P. Small, Danham, Pa. An advertising sheet of apianian supplies.
- M. J. Dickason, Hiawatha, Kan. An 18-page list of apianian supplies.
- B. J. Miller & Co., Nappanee, Ind. A 16-page list of apianian supplies.
- Reynolds Bros., Williamsburg, Ind. A 16-page list of bee-supplies.
- S. B. McLean, Columbia, Tenn. An advertising sheet of bees and queens.
- T. F. Shepherd, Franklin, Pa. A 4-page (large size) list of bee-supplies.
- Arthur A. Davis, Clark's Green, Pa. A 12-page circular of bee-supplies, queens, etc.
- Geo. W. Drinn, Laurelville, Hocking Co., O. An 8-page list of bees, sections, etc.
- N. B. Peasall, Morris, N. Y. A 20-page (large size) circular of seeds, plants, poultry, and bee-supplies.
- F. D. Welcome, Mechanic Falls, Me. A 16-page (large size) circular of bee-supplies and small fruits.
- Jos. E. Shaver, North River, Va. A 30-page circular of bee-hives, foundation, and supplies in general.
- Abbott Bros., Southall, London, England. An 8-page circular of all tools necessary for making hives, supers, etc.
- G. W. Stanley, Wyoming, N. Y. A 12-page list of the Stanley Automatic honey-extractor, giving testimonials, etc.
- B. Davidson, Cuyahoga, Ontario, Canada. A 4-page (large size) list of hives, section boxes, comb foundation, etc.
- J. W. Eckman, Richmond, Texas. A very pretty price list, folded in the form of an envelope. Bees, queens, poultry, etc.
- E. S. Armstrong, Jerseyville, Ill. A 34 page circular of Armstrong's reversing hives and reversing section boxes; also of bee-supplies in general.
- W. W. Bliss, Duarte, Los Angeles Co., Cal. A 10-page price list of apianian supplies. As he is located on the extreme Western coast, he will probably receive a large share of the Western trade.
- Aspinwall & Trendwell, Barrytown-on-Hudson, N. Y. A 34-page (large size) list of bee-keepers' supplies. Our friends A. & T. are the editors of "The Bee-Keeper's Magazine," published at the address above.
- Thomas B. Blow, Welton, Herts, Eng. A 60-page price list of everything most useful for the apianian. This catalogue gives us quite an idea of the preferences of the English people in supers, hives, and frames. Next to the Abbots, we believe that Mr. Blow is the largest supply-dealer in England.
- W. T. Falconer, Jamestown, N. Y. A 20-page (large size), neatly gotten-up circular of bee-supplies. Friend Falconer offers quite a large collection of implements for the apianian, and some new styles of hives, supers, etc. Although he is one of our strongest competitors in the supply-business, we take pleasure in recommending him to our bee-friends as a nice man to deal with.
- W. P. Davis, Goodman, N. C. A 6-page list of bee-supplies.
- Levering Bros., Wiotia, Iowa. A 8 page list of bee-supplies. The two last mentioned were printed at this office.

CONVENTION NOTICES.

Bee-keepers are hereby notified that the annual meeting of the Stark Co. Bee-keepers' Society will occur on April 12th next, in Grange Hall (over Farmers' Bank), Canton, O. Officers for the ensuing year will be elected. All bee-keepers are urged to be present and those having hives or fixtures are requested to bring the same for exhibition. MARK THOMSON, Sec.

CALIFORNIA APIARIES.

We have four apiaries for sale, varying in price from \$500 to \$1000. For detailed information write to
FORTH, EASLEY & REPPY, Agts.,
San Buenaventura, Cal.

FOR SALE.—A complete apiary of 140 colonies of fine premium bees in a never-failing locality. A bargain, if called for soon. My bees and queens were awarded first premium at the late St. Louis Fair. St. Louis, Mo. Address at once.
L. WERNER, Edwardsville, Ill. 4tfab

WANTED.—A steady man to work small apiary and garden. Correspond with J. T. DUEWALD, Seneca, Wis.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfcd

KIND WORDS FROM OUR CUSTOMERS.

THAT WHEELBARROW.

The wheelbarrow is excellent, and goes beyond my expectations. C. K. DECKER.
Hanford, Cal., Jan. 22, 1887.

RUBBER STAMPS.

You will see by this card that we have received our rubber stamp, and are well pleased with it—the handiest thing we have got hold of for some time. LaSalle, Ill. T. & B. YOUNG.

I am well pleased with GLEANINGS, and I do not think I can do without it. It is much company to me. As there are so many good Christian friends who contribute to its pages, it is like conversing with dear friends I have known. N. A. E. ELLIS.
Astoria, Mo., Jan. 5, 1887.

OUR NEW REVERSIBLE FRAME, AND HOW IT PLEASES.

Please send me the price of 500 wired reversible frames, L. size, put together, ready for the fdn. I have 250 now in use, and I like them better than any other frame I ever used. J. G. NORTON.
Macomb, Ill., Feb. 4, 1887.

I have enjoyed reading the few copies of GLEANINGS I ordered with my bill of notions last fall so much that I think I shall be able to read it the coming year or will subscribe for it. I "glean" a great deal from it. D. C. AYERS.
Moawequa, Ill., Dec. 3, 1886.

HOW THE A B C BRINGS ABOUT SUCCESS.

I must say that I have derived such a vast amount of good from the A B C that I am astonished myself to think what a powerful thing is knowledge. I have followed your directions, and have succeeded. I have a splendid honey-crop, if I may call it a crop. A. H. BAUM.
Ashland, Ohio.

AN IMPORTED QUEEN IN HER THIRD YEAR, AND STILL DOING GOOD SERVICE.

I had, Oct. 1, the imported queen I got from you in May, 1884. You said she was imported the year before. She has been a very prolific queen, and has given my bees lots of "vim," or vigor, and was well worth the price paid. She has kept her hive full of bees this season. She looked rather old the first of October. G. W. GILLET.
Wellington, O., Nov. 24, 1886.

DON'T KNOW HOW TO GET ALONG WITHOUT IT.

Since writing to you to stop my journal I have repented, and don't know how to get along without it, so here I send a dollar, for which to renew my subscription. I just want to say, that I appreciate your kind words of counsel and instruction very much. I have learned much in your journal that has done me good. I wish you success in the good work. W. M. SENFF.
Bremen, Ind., Dec. 31, 1886.

I consider GLEANINGS the best bee-journal I know of, and I could not well keep house (or bees) without it; neither is the attractiveness impaired by the work done under the head of "Our Own Apiary." A host of A B C scholars are being added to your list each year, and these topics that were ventilated a few years ago are new to them, and they are anxious for these facts. S. S. LAWING, P. M.
Henderson, Mo.

THAT A B C BOOK ON TRANSFERRING.

Friend Root, let me tell you how I have got acquainted with bees and your valuable books. Last August a friend invited me to see his bees. I visited him, and he opened one of his hives, showed how it worked, and explained to me all about it. He gave me one of your catalogues. I went home and got so interested in the matter that my mind is wholly taken up with bees. I then sent immediately for the A B C, which I have been reading all the time. I went to work and got 12 swarms in box-hives. Following my A B C book in transferring, I transferred one late in September in less than half an hour, without smoke, gloves, or veil.

Brooklyn, N. Y.

ANTON KIRSCH.

THE A B C OF CARP CULTURE.

The A B C of Carp Culture came to hand all right. I think it is 40 cts. well invested. When I go home to Michigan for the purpose of occupying my land in that State I expect to start an apiary, and will construct ponds, and get them well started with water-plants, preparatory to receiving the carp for propagation. A. RICHMOND.
Keenansville, Ont., Nov. 29, 1886.

SECRETARY CHAMBERLAIN'S OPINION OF TERRY'S POTATO CULTURE AND WINTER CARE OF HORSES AND CATTLE.

I have Terry's potato-growing, the best thing ever printed on the subject, in my opinion. I may say the same of his work on cattle-feeding, which he wrote (in substance) at my request, and gave at many institutes as a lecture. W. I. CHAMBERLAIN.
Ames, Ia., Jan. 31, 1887.

THE KITE FOR LITTLE ONES.

You said, as I subscribed in October I was hardly entitled to a kite; but you sent it, as perhaps it would gladden some young heart. It did gladden a young heart. The owner of the kite is six years old, and calls me papa. I thank God that A. I. Root has such kind-hearted Christians in his employ, to have such sympathy for our little children as you manifest in your card. L. H. WILCOX.
Farmington, W. Va., Nov. 23, 1886.

A KIND WORD FROM MRS. HARRISON IN REGARD TO OUR A B C BOOK ON CARP, AND ALSO FOR OUR POTATO-BOOK.

Please accept my thanks for your giving to the world, in cheap form, two such excellent works as the A B C on Carp, and on Potato Culture. I do not expect to engage in the culture of either, but I think their perusal paid me well. If they had cost a dollar apiece, I should not have enjoyed the treat. 821 Hurlburt St., Peoria, Ill. MRS. L. HARRISON.

THE STORY OF THE BIBLE, AND WHAT OUR OLD FRIEND WM. MUTH-RASMUSSEN THINKS OF IT.

Please send me by mail 6 copies of the "Story of the Bible." These are for the Sunday-school of which I am superintendent. I think they will be easier to learn and understand, than the common lesson-papers. I have not been able to see all the parents yet, and may therefore get orders for more books. W. M. MUTH-RASMUSSEN.
Independence, Cal.

OUR NEW FLAT-BOTTOMED FOUNDATION.

Your sample of flat-bottom fdn. is at hand, and is very nice. Could you tell me about how many pounds of the flat-bottomed would be required to fill full 1000 sections, 4 1/2 x 4 1/2? The 5000 Simplicity sections are the nicest I ever bought.

17—J. M. BROOKS—57.
Columbus, Ind., Feb. 11, 1887.

[One sq. ft. is enough to fill 10 sections. You would need, for 1000 sections, 100 sq. ft.; and as this flat-bottomed fdn. goes over 14 ft. to the lb., you would need about 7 lbs. to the 1000 sections.]

EVERY THING SATISFACTORY.

I received my goods all right, for they were packed so neatly for shipping. My wax-extractor I am more than pleased with, for it is a little daisy. My comb foundation is as nice as I ever saw. You had my A B C book packed so well it would have carried 1000 miles as well as the distance it did ride. I would not take double for my book what I paid for it, and do without it, for it is a perfect guide to bee-keeping. Your book is so cheap that every bee-keeper ought to have one. JOHN H. PENCE.
Terre Haute, O., Dec. 3, 1886.

THE A B C AND THOSE SERMONS.

Inclosed find \$1.00 for GLEANINGS. About one year ago, becoming interested in bees, I accidentally got one of your price lists in my hands, and forthwith sent you an order for an outfit in bee culture. Since then I have ordered of you at various times, and am glad to say that my orders were promptly and satisfactorily attended to. By the advice and light of your A B C book I have gained much theoretical knowledge which has enabled me to put into successful practice many of the seemingly gigantic operations connected with bee-

keeping. My 8 colonies are wintering on their summer stands, with no protection except a chaff cushion placed over the frames, and all seem to be all right. Every few days it is warm enough for them to come out and air themselves, and I assure you they seem to enjoy it. I very much enjoy working with and for the little rascals, but not half so much as I do reading those "sermons" of yours in GLEANINGS. These, only, caused me to subscribe at first, and to renew now. May you live long to shed life on the Christian pathway, and turn souls from dark and deceptive ways that lead to ruin.

D. C. McCAMPBELL, M. D.
Harmontown, Miss., Jan. 18, 1887.

A KIND WORD FOR OUR MAPLE SYRUP.

The sample of maple syrup came all right. I must say it is the finest I have tasted in twenty years; and, besides, only 20 cts. more per gallon than is asked for the best sorghum here. I intend to send for some of it in a few weeks. It is my favorite syrup, and I could drink it as others drink wine, but of course I would not. I have only one colony of bees left in Utica, Mo. I took sixty pounds of surplus honey from it last summer.

Quincy, Ill., Mar. 10, 1887. Mrs. S. C. TYLER.

"BEARING OUR SHARE OF SUFFERING."

I am anxious to tell you how much I enjoy reading GLEANINGS, or hearing it read. The way you wrote about bearing our share of suffering caused me to think, as I had never thought before. I had been blind with sore eyes for about four weeks, and the thought of being compelled to give up taking care of the bees was hard to bear; but it has pleased our kind heavenly Father to restore my sight, although my eyes are not strong. I shall try to procure some subscribers for GLEANINGS. It ought to be in the home of every bee-keeper at least. The bees did not store much surplus honey the past season.

J. T. VANPETTEN.
Linn, Kans.

A PLEASED CUSTOMER.

The goods were received in tiptop order. The soldering implements are worth their weight in gold. I would not take \$5.00 for them, if I could not get some like them. The glass-cutters speak for themselves. I can not see how you can offer them for so small an amount of money. They are worth to me 25 cts. apiece. The 3 cts. in stamps, which I received for discount, I did not expect when I sent you the order. I could have saved you some trouble if I had thought of it sooner. I think your journal worth the money any time. I could not do without it, and the A B C book is a splendid book. I have gained many a practical hint out of it. The bees in this part of the country are in good condition so far. The goods were only three days in transit. Freight charges were reasonable. Many thanks to you.

H. D. FRIEND.
Douglas, O., Feb. 24, 1887.

[Well, friend F., you are a "friend" indeed, in more senses than one. I feel almost guilty about letting such a very kind letter go into print, for some one will accuse us of picking out only the kind words and not printing the others, and we surely ought to be consistent as well as truthful, therefore we put in something to balance it in the department of Growlery, which see.]

THE HOME TALKS.

Bro. Root—(for I do feel that you are indeed a brother in Christ), every time GLEANINGS comes to hand and I read Myself and Neighbors, also Our Homes, it fills my very soul to overflowing with love and gratitude toward you—so much so that it seems at times I have almost got you by the hand, giving it a welcome shake. Do not think that I am trying to flatter you—far from it. When I read the good advice you give to Christians in the way of discharging our duty in order to bring sinners to Christ, it has made me set a more determined resolution to live closer to the Savior, and let my light shine brighter, that I may yet, in my old age, be the means of saving some poor souls by my godly walk and conversation. I have just finished reading Myself and Neighbors and Our Homes of the 15th of Dec., and it fills my soul with joy to think there is a man in my native State of Ohio doing the good that I am satisfied you are doing, for I know you have done me good in many ways. I have been thinking about dropping GLEANINGS for a year, and taking

another journal; but after reading what I have just read, I do not see how I can give the good old GLEANINGS up for any thing else. But should I give it up for a while, I shall not give up A. I. Root or any thing in his line of business, or of teaching the ways of the blessed Redeemer. May God help you to continue in the good work you are in, is the prayer of one who loves you.

CHAS. L. GOUGH.
Rock Spring, Mo., Dec. 22, 1886.

[My dear friend and brother, you are certainly giving me more credit than I deserve. You have perhaps seen only my best side. If I have been so fortunate as to show forth the spirit of the Master now and then, let him have all the honor and praise and glory; and do not, I beseech of you, place too much dependence on any thing human. You know we are but dust, even the best of us.]

HOW THE A B C CAME TO THE RESCUE IN WINTER-ING.

I bought an A B C book and 14 colonies of bees late in the autumn of 1884. Not having any smoker, and being a novice, I can assure you I had a lively time preparing them for winter. They were in a starving condition. I fed syrup from granulated sugar; but it became so cold, before they had taken up sufficient stores to winter upon, that they would not lick it up. I searched my A B C and found a remedy in cakes of sugar like marble which I made 2 inches thick, in frames, placing them over the racks, and covering with chaff cushions. I clamped them according to instructions in the A B C, and I can tell you, friend Root, they hibernated in good style, although that was the very severe winter in which some of our old beemen lost so heavily. I lost but one colony, and I believe it had been queenless early in the fall.

I shade the entrances of the hives, or front of the clamps, which are 24 feet long, with a shanty roof of boards, putting air-tubes at each end, allowing the snow to cover over the whole fabric, keeping air-tubes open except in the severest weather, when I stuff them with straw. During the summer of 1885 I increased to 34, which I wintered without any loss. They were just booming in the spring. I had 8 large swarms in May (don't forget we are pretty far north of you). I feel grateful to you, friend Root, as my success so far is largely due to A B C and GLEANINGS.

J. H. REED.
Mimosa, Ont., Can., Jan. 27, 1887.

HOW OUR GOODS PLEASE IN AUSTRALIA; "GOOD VALUE FOR THE MONEY."

The goods I ordered of you arrived here Oct. 11th in good order; and to say that I am pleased with them is not sufficient to express the gratification I experienced when I found what really good value I had received for my money. I may say, I have been working machines in sawmills for the last 20 years; and the only wonder to me is that you can supply such finished goods at such a low price. I also received from you last mail the parcels of books. I am sure you must feel gratified at knowing that your A B C of Bee Culture is becoming more appreciated in this colony. I now have orders for three more, but I tell them they must wait till I can get them over by freight. I intend to send from here in the December mail a good large order for hives and appliances, so that I can get them in time for next season. The hives you sent I could have sold, but I wanted some myself, so I kept half of them. It's rather amusing to think that three years I was reckoned a lunatic; two years ago people fancied I was not quite foolish; one year ago they wanted to know how I managed to get so much honey, and this year the district is getting the fever very badly, so I think I shall be able to start a supply-business.

I wrote you previously, that I ordered eight queens from Chas. Bianconcini, of Bologna, Italy, through seeing his advertisement in GLEANINGS. I received the queens on the 21st of Oct., all alive, and have them introduced and laying. It was 42 days from the time they left his place. He had evidently given them every attention in packing. Allow me again to express my pleasure in doing business with one who evidently practices what he preaches.

The foundation-mill works well. By following your directions I had no trouble at all, but I can not manage to get sheets of wax 3 ft. long; but that will come by practice.

F. B. HUDSON.
Bathurst, N. S. Wales, Australia, Nov. 3, 1886.

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
— FOR PRICES ON —

BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
24-11db

— **ARMSTRONG'S** —



NEW REVERSIBLE HIVE.

The cheapest, simplest, and most practical hive ever offered to the public. H. D. Cutting, of Clinton, Mich., says: "Let me congratulate you on having such a good hive. Your reversible-section case is perfection itself." Sample hive complete, with paint, \$2.50. Send your name and address, plainly written on a postal card, and receive our 32-page illustrated catalogue free. Address

5tfdb E. S. ARMSTRONG, Jerseyville, Ills.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-hangers for a 2 15-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Six 18-in. adjustable drop-hangers for a 2 7-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Eight 30-in. iron pulleys, 10-in. face, for a 2 7-16-in. shaft. Cost \$8.00 each; will sell for \$4.00.

These are just as good as new, and a bargain to the man who needs them.

A. I. ROOT, Medina, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers."

1tfdb

200 COLONIES OF Choice Italian & Albino Bees

FOR SALE AT GREATLY REDUCED PRICES.

Also a full line of Bee-keepers' Supplies. **COMB FOUNDATION** from choice select yellow beeswax a specialty, at very low rates, both wholesale and retail.

Do not fail to send for my 27th Annual Catalogue before purchasing.

Address
3tfdb

WM. W. CARY,
COLERAINE, MASS.

Mention this paper when writing.

Send for my new and enlarged Price List for 1887 now ready, of

APIARIAN SUPPLIES, ITALIAN BEES AND QUEENS.

All untested queens warranted purely mated. Also three varieties of

HIGH-CLASS POULTRY.

4-5-6d.

C. M. DIXON, Parrish, Ill.

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.

—SEND FOR MY NEW PRICE LIST.—

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.
4tfdb

ESTABLISHED 1855.

BEESWAX HEADQUARTERS.

We have constantly on hand a large stock of Domestic and Imported Beeswax in original shape, which we offer to manufacturers of Comb Foundation at lowest prices. We guarantee all our beeswax absolutely pure. Write to us for prices. Address

R. ECKERMANN & WILL,
Beeswax Bleachers & Refiners. 4-12db SYRACUSE, N. Y.

Write to W. H. COOK, † Clintonville, † Wis.,

FOR PRICES ON

Bee-Hives, Sections, & Frames

As I am located where an abundance of basswood and pine grows, I feel safe to say I can furnish my goods as cheap as they can be produced.

A. I. Root Chaff Hive a Specialty.

All goods warranted. For reference, apply to the Bank of Clintonville, Wis. 4tfdb

The "Gilt Edge" Apiary offers Italian queens from imp. mother; untested, in April and May, \$1.25; un't'd, in June and after, \$1.00. Tested queens double above price.

A. P. STAIR,
5-10db Whitney, St. Clair Co., Ala.

200 COLONIES OF ITALIAN BEES FOR SALE!

51 colonies on special terms. Send for prices.
567d S. D. McLEAN, BOX 190, COLUMBIA, TENN.

CARNIOLAN AND ITALIAN QUEENS, BEES AND SUPPLIES.
Also B. Leghorns, P. Rocks, and Raspberries.
5-6-7d □ Box 34. J. W. CLARK, Clarksburg, Mo.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20-ftdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange eggs from four yards, pure-bred prize-winning Plymouth Rocks, for alsike clover seed. Eggs, \$2.00 for 13, or \$3.00 for 30.
B. D. SIDWELL,
3-8db Flushing, Belmont Co., Ohio.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free.
4ftdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange nursery stock of all kinds for bees in spring. Terms on application, stating what you want.
D. G. EDMISTON,
4ftdb. Adrian, Mich.

WANTED.—To exchange 40 acres of good land, $\frac{3}{4}$ improved, frame house and barn, good spring, $\frac{3}{4}$ mile from a thriving temperance town; good schools, church, etc., and situated on the great basswood belt of Wisconsin, for property in Arkansas, small or large. Apiary if desired. Correspondence solicited.
M. A. GILL,
5ftdb Star, Vernon Co., Wis.

WANTED.—To exchange for bees, or offers, 160 acres of Western Neb. land, 160 acres Central Kan. land, 80 acre Western Iowa farm. Immediately, if at all.
ANTHONY JOHNSON,
5ftdb Essex, Page Co., Iowa.

WANTED.—To exchange for comb honey, one dovetailing machine, 8 saws, steel mandrel, and table; good as new. Root's pattern. For particulars address
B. F. STOVER,
6d Roscoe, Cosh. Co., O.

WANTED.—To exchange, any amount of Wyandotte and Brown Leghorn eggs for grapevines, fdn., plum-trees, or any thing useful.
6-7d BENJ. ZURCHES, Apple Creek, Wayne Co., O.

WANTED.—To exchange for sewing-machine, Brown Leghorn pullets, 75c; cockerels, \$1.00; eggs, 75c per 13; 26, \$1.00. Warranted pure.
6-7d MRS. ALICE BRIGHT, Mazeppa, Minn.

WANTED.—To exchange Italian bees and queens for S. S. Hamburgs and White Leghorns and other poultry and eggs. None but the very finest stock wanted. Also your address wanted for my new circular.
CHAS. D. DUVAL,
6d Spencerville, Montgomery Co., Md.

WANTED.—To exchange a new Hitchcock's Bible, cost \$9.75; Sharpless, Crescent, Monarch, and Wilson Strawberry-plants, for pure Italian queens, also pair of Plymouth Rocks.
S. J. ADAMS,
6d Cub Creek, Charlotte Co., Va.

WANTED.—To exchange forty thousand extra-fine Cuthbert, Gregg, and 13 other new varieties red and black raspberry plants, for comb or extracted honey. The honey is to be delivered next fall. Write for terms of exchange to
E. T. FLANAGAN, box 995,
6-7-8d Belleville, St. Clair Co., Ill.

WANTED.—To exchange pure-bred S. C. Brown Leghorn hens for white Leghorn; will also exchange eggs from the following varieties: Light Brahmas, Dark Brahmas, Plymouth Rocks, Brown Leghorns, S. S. Hamburgs, P. Ducks, Bronze Turkeys, for eggs of white Wyandottes and White Plymouth Rocks. I will warrant all fowls to be purely bred, and all right. Prices reasonable.
6d Send for circular. B. J. PURCELL, Concord, Ky.

WANTED.—To exchange bees by the pound or full colonies, queens, comb fdn., eggs for hatching from L. Brahmas and S. S. Hamburgs, for sections, Jersey cow, American Merino sheep, or offers.
6-7-8-9d J. P. STERRITT, Sheakleyville,
Mercer Co., Pa.

WANTED.—To exchange eggs from pure-bred Langshan fowls, for beeswax, tested Italian queens, good revolver, or any thing useful.
6d E. P. ALDREDGE, Franklin Square, Col. Co., O.

WANTED.—To exchange fine colonies of Italian bees in splendid double-wall hives, for good silver watch. Write immediately to
M. J. HARRIS, Clay City, Clay Co., Ill.

WANTED.—To exchange untested and tested Italian queens, for sections, tested H. L. queen, Pelham fdn. mill, or offers. Address
6d B. L. BOURLAND, Valley Spring, Texas.

WANTED.—To exchange Italian or Albino bees and queens, for a good gold watch (it must be a very extra good time-keeper), or a double-barrel breech-loading shot-gun, or for something else that is valuable. Address
OTTO KLEINOW,
6d (Opp. Fort Wayne Gate), Detroit, Mich.

WANTED.—To exchange for beeswax, one foot-power saw. Also wanted, a good Mexican saddle and bridle, for sections or other supplies.
6-7d C. A. GRAVES, Birmingham, Ohio.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is often times quite an accommodation to those who can not afford higher-priced ones.

Six or eight hybrid Italian queens at 50c each,—to be mailed in March. During April I can supply 9 or 10 pure black, or German queens, which I shall obtain in Italianizing for a friend, at 30c each. Safe arrival in all cases.

ABBOTT L. SWINSON, Apiarist,
Goldboro, Wayne Co., N. C.



PATENT
Climax
Crates and Baskets. The best made. Indorsed by all leading berry growers.
Prices low. Illustrated Catalogue free.



DISBROW MFG CO., Rochester, N. Y.

FOUNDATION. Samples Free. Prices Low.
679d WILSON BONE-MILL FOR SALE.
H. L. GRAHAM, Grandview, Ia.

1872 NUCLEI 1887 A SPECIALTY

Two frames of brood well covered with bees, including untested queen, for \$2.50.

Queens, Bees, and Apiarian Supplies

Very low. Send for Price List. Satisfaction guaranteed.
C. M. HICKS, Fairview, Wash. Co., Md.
6-7-9-11d

SECTIONS

5000 FOR \$18.00.

If orders are here by April 15th. Samples for stamps. 67d C. A. GRAVES, Birmingham, O.

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PURE ITALIAN BEES FOR SALE.

Two-frame nuclei, \$3.00; 3-frame, \$3.50. If larger nuclei are wanted, add 50 cts. for each additional frame. Full colony in A. I. Root's Simp. hive, \$6.00, each to contain a tested queen and plenty of bees and brood, all on wired L. frames drawn from fdn. To be shipped in May; safe arrival guaranteed. I shall do by all as I would be done by. Address 7-104db. N. A. KNAPP, Rochester, Lorain Co., O.

ITALIAN QUEENS.

Reared from select mothers. Untested, \$1.00; Tested, \$2.00. H. G. FRAME, North Manchester, Ind.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1910 Germantown Ave., Phil'a, Pa.; E. Kretzmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Readwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas; W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; W. J. Stratton, Atwater, O., and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and uncollected testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3btfdd Hamilton, Hancock Co., Illinois.

BEE SUPPLIES.

Our One-Piece V-Groove Section,

Smooth on both sides, at \$2.00 per 1000; extra fine, \$3.50 per M; for larger lots write for price list and sample, free. A. M. MURRAY & CO.,

6-7d

Goshen, Elkhart Co., Ind.

4103 LBS. OF HONEY GATHERED BY 40 COLONIES IN 7 DAYS.

We have purchased L. C. Root's celebrated breeding stock, which, together with our own, gives us the choicest collection of Italian bees in the world, and one that has the

BEST HONEY-PRODUCING RECORD EXTANT.

We will spare a few full colonies and nuclei containing some very choice breeding queens of this stock. We make a specialty of rearing only first-class Italian Bees and Queens at the

KNICKERBOCKER BEE-FARM

C. H. KNICKERBOCKER, Proprietor. S. M. LOCK, Manager.

Our circular for 1887 contains an important letter (regarding these bees) from L. C. Root, that every bee-keeper should read. Send for it before ordering queens elsewhere. Address

KNICKERBOCKER BEE-FARM,

7tfdd Pine Plains, Dutchess Co., N. Y.

20 Colonies of Bees For Sale,

In 8-Frame L. Hive, Wired Combs. Strong in bees, and every way desirable, at \$6.00 per swarm. F. D. NAGLE,

6-9db

South Haven, Mich.

BEES By the Pound, Nucleus, or Swarm.

FOR \$1.25 PER POUND, IN MAY.

Write for Particulars.

SALE

Address BEE CHENEY,
7d KANAWHA FALLS, W. VA.

FOR ITALIAN QUEENS and EARLY CHEAP

61ldb Address W. P. Davis, Goodman, N. C.

COMB FOUNDATION.

Dunham Brood Fdn., 40c. per lb.; extra thin Vandervort Fdn., 45c. per lb. Wax made into fdn. for 10 and 20c. per lb. 10% discount on all orders received before the 15th of April.

SAMPLES FREE.

3-tfdd F. W. HOLMES, Coopersville, Mich.

For Sale. Italian-Albino Bees and Queens, by the pound, Nucleus, and full Colonies.

Address OTTO KLEINOW,

5tfdd (opp. Fort Wayne Gate), Detroit, Mich.

KENWARD-HALL APIARY.

200 untested queens ready for mailing; prices: March, \$1.00; doz., \$12.00; April, \$1.00; doz., \$10.00; May, 90c; doz., \$9.00; June, 80c; doz., \$8.00; July, 75c; doz., \$7.00. Write for information and price list.

7-9d

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.

BEE-HIVES. Two Simplicity hives; 10 brood-frames, 7 wide frames, 2 covers, and 56 1-lb. sections, all for \$1.20. Pecan duck eggs and Plymouth-Rock chicken eggs, 13 of each for \$1.00. T. A. GUNN, Tullahoma, Tenn. 5d

WANTED TO SELL.

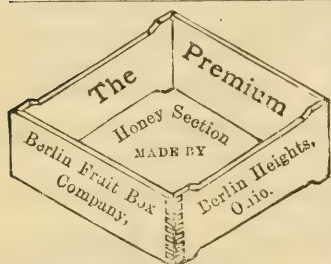
100 3-frame nucleus colonies of hybrid bees, with queens, each \$2 50
 Two-story Simplicity hives (complete) each 1 50
 Chaff hives (have been used some) each 3 00
 Highly bred hybrid queens, each 1 00
 4¼x4¼ sections (V groove) per M 5 00
 The photo of my apiary given as a premium on supplies purchased to the amount of \$5.00, cash orders. Will exchange nuclei colonies or ext'd honey for apiarian supplies, if new.
 7tfdb J. M. YOUNG, Rock Bluffs, Nebraska.

Now is Your Time.

BEES, BEES, ONLY \$1.00 PER LB.,
AND QUEENS AS CHEAP AND CHEAPER TOO.
 Illustrated catalogue for your name and address.
 7d JNO. A. THORNTON, LIMA, ILLINOIS.

BEE-KEEPERS' SUPPLIES

Near your home in Western Pennsylvania and in the oil-producing district of Butler Co.
SIMPLICITY, PORTICO, AND THREE STYLES OF CHAFF HIVES.
 Send for price list, if it is to your interest to deal with me.
C. P. BISH,
 78910-11-13d St. Joe Station, Butler Co., Pa.



One - Piece Sections and Wood Separators, a specialty. Our No. 2 sections (\$2.50 per M.) have no equal for the price. Berry-baskets and crates also, a specialty. For catalogue, address as in the cut.
 6-7-8d

20 Colonies Italian Bees FOR SALE
 in good condition, on 7 Langstroth frames, in shipping-boxes, at \$4.00 per colony.
 6-7-8d WM. AMELANG, Ottumwa, Wapello Co., Iowa.

BEES! CHEAP BEES!
 For Price List Write to
 6tfdb M. W. SHEPHERD, Rochester, O.

ITALIAN BEES and QUEENS.

Full colonies, in April and May, \$8.00 (Simp. wired frames, combs built on fdm). Bees, per lb., \$1.00. Per ¼ lb., 60 cts. Tested queens, \$2.00. Untested, \$1.25. Mismatched queens, 50 cts. All queens reared from imported mother.
 6tfdb MISS A. M. TAYLOR, Mulberry Grove, Bond Co., Ills.

BEES CHEAP!

I have had charge of A. I. Root's apiary for three years. I intend to start an apiary five miles from town; will sell full colonies and nuclei cheap. Fine queens a specialty. For particulars, address
WM. P. KIMBER,
 6tfdb Medina Co. Medina, Ohio.

BEES! 300 COLONIES ITALIANS.

Ready for spring delivery at 60c to \$1.00 per lb., according to time. Choice queens and brood cheaper in proportion. Also ADJUSTABLE HONEY-CASE, hives, and supplies. Circular free. 6tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

22 YEARS OLD.

NORTHSHADE * APIARY.

100 Colonies of Italian Bees For Sale in 8-frame L. or 12-frame Gallup hives, in good healthy condition, delivered at express office in Alamo, Mich., in good shipping order.

Single colonies, each \$7 00
 2 to 5 " " 6 50
 5 to 10 " " 6 25
 10 or more, " " 6 00

Same as above, with only one comb brood and honey, 25 per cent discount from above prices. I guarantee these bees to be as fine a strain of Italians as can be found—perfectly healthy, with a good prolific queen with each colony.

If wanted, I will furnish the Gallup size in fine chaff hives, in lots of 5 and up, at \$8.00 per colony.

All my combs are nice straight worker combs, a large share of them drawn from foundation in wired frames.

All orders to be filled as soon as the weather will permit in May. All orders should be in by the first of May. Five per cent discount on all orders received before the 1st of April.

References—A. I. Root, Mich. National Bank, Kalamazoo, Mich., or any of my old patrons.

Address **O. H. TOWNSEND,**
 6-7d Kal. Co. Alamo, Mich.

1000 FIRST-CLASS SMOKERS, CHEAP.
E. T. LEWIS & CO., Toledo, O.

STRIAN, ITALIAN, and ALBINO QUEENS and BEES. 1 lb. of bees, 1 frame brood, untested queen, \$2.25. Untested queen, 75 cts.; tested, \$1.50 after May 20th.
 7-9d N. E. COTTRELL, Burdick, Ind.

CHEAP! ITALIAN QUEENS, COLONIES, BEES BY THE LB., NUCLEI, AND COMB FOUNDATION.

Send for Circular. **JAS. McNEILL,**
 7tfdb Hudson, N. Y.

ESTABLISHED 1855.

BEESWAX HEADQUARTERS.

We have constantly on hand a large stock of Domestic and Imported Beeswax in original shape, which we offer to manufacturers of Comb Foundation at lowest prices. We guarantee all our beeswax absolutely pure. Write to us for prices. Address **R. ECKERMANN & WILL,**
 Beeswax Bleachers & Refiners, 4-12b SYRACUSE, N. Y.

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First quality, white basswood, dovetailed, or to nail; 4 pieces, 4¼x4¼; price, \$4.50 per M.; 5000, \$20. Sure to please you. Any size of section made to order, and shipping-crates in season. Sample section sent for a stamp.

5tfdb **F. CRANGER & SON,**
 Harford Mills, Cortland Co., N. Y.

A. J. KING'S New Bee - Hive

Takes either Eclectic or Simplicity frames, the 1-lb. sections, etc., and is cheaper and better than any he has before brought out. He sells all supplies cheaper than ever, and guarantees satisfaction **EVERY TIME.** You will save money by writing him for particulars. 5tfdb **51 Barclay St., N. Y.**

For Sale. 100 colonies of Italian bees. From \$5.00 to \$8.00 per colony. Tested queens, in May, \$2.00; after June 1, \$1.50. Untested queens, in May, \$1.00; six, \$5.00; after June 1, 75c.; six, \$4.00. Also bees by the pound; 2 and 3 frame nuclei; hives, sections, fdm., etc. Circular free. 5-16db Address **JNO. NEBEL & SON, High Hill, Mo.**

Eggs for Hatching.

From pure-bred S. C. and R. C. B. Leghorns, Black Hamburgs, and P. Rocks. Per sitting of 13 eggs, \$1.00. Two or more sittings, at one time, each 75 cts. Carefully packed in baskets, and express charges paid to destination anywhere in N. Y. State. Also 100 colonies of Italian bees for sale. Breeding and tested queens now. Untested queens, after May 15th. Write for prices.

7-8d F. D. WOOLVER, Munnsville, N. Y.

PURE P. ROCK EGGS, \$1.00 PER 13.
7-8d R. W. TURNER, Medina, Ohio.

CARNIOLAN AND ITALIAN QUEENS, BEES AND SUPPLIES.
Also B. Leghorns, P. Rocks, and Raspberries.
5-6-7d Box 34. J. W. CLARK, Clarksburg, Mo.

3000 LBS. FIRST-CLASS FOUNDATION, CHEAP.
7-9d E. T. LEWIS & CO., Toledo, Ohio.

\$6.00 WILL buy a colony of bees and a pair of beautiful Silver-Spangled Hamburgs.
7d J. C. CAPEHART, St. Albans, W. Va.

FOR CASH! Pure Italian queens, in April and May. One untested, \$1.00; ½ doz., \$5.50; per doz., \$10.00. For tested queens, double. Guarantee safe arrival. Address
7d D. E. ALDERMAN, Clinton, Sampson Co., North Carolina.

W. Z. HUTCHINSON,
ROGERSVILLE, GENESEE CO., MICH.,

Has written, published, and now offers for sale, a little book upon "THE PRODUCTION OF COMB HONEY." Although its distinctive feature is that of teaching how to profitably dispense with full sheets of foundation in the brood-nest when hiving swarms, several other points are touched upon, and the system of comb-honey production that the author believes to be best is briefly outlined. Price of the book, postpaid, 25 cts. 7tdb

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WEEKLY, \$1.00 PER YEAR.

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The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9ftb

ITALIAN QUEENS

BEE-HIVES AND SUPPLIES.

ONE PIECE V-GROOVE SECTIONS, BEE-FEEDERS, WIRE NAILS, PERFORATED ZINC.

Scrub Brushes, a friend for the ladies, 65 cents each; \$4.00 per dozen. Alsike clover seed, \$7.50 per bushel; \$2.00 per peck; 15 cents per pound.

B. J. MILLER & CO.,

4-10db NAPPANEE, IND.

ON 30 DAYS' TRIAL.



THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person lies in bed. With light pressure the hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.

1-12db

10 Colonies of Hybrid Bees For Sale

IN 10-FRAME LANGSTROTH HIVES.

AT \$3.00 PER COLONY, TAKEN AT APIARY.

H. A. HEIST, East Germantown, Wayne Co., Ind.

7d

FOR SALE.—BEES, good colonies in shipping-cases, with 9 Langstroth frames. Italians, \$4.50; hybrids, \$4.00; delivered at R. R. station any time after May 1. MISS MABEL FENN, Tullmadge, Ohio.

7tdb

BEES

Guide to Bee-Keeping, & Catalogue of CHEAPEST AND BEST Supplies, mailed free. Address J. L. Kust & Co. New Carlisle, O.

PRIME & GOVE,
BRISTOL, * VERMONT,

—MANUFACTURERS OF—

Bee-Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples free. 5tdb.

HEDDON'S

— 1887 —

CIRCULAR

NOW READY.

ADDRESS JAMES HEDDON,
DOWAGIAC, MICH.

1tdb

BEE KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, for 1887, FREE. Reduced prices. Address J. C. NYSEWANDER, Des Moines, Iowa. 3tdb

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SECTIONS, BEE-HIVES, HONEY-BOXES, FRAMES, ETC.

LARGEST FACTORY IN THE WORLD.

Best of goods at lowest prices. Write for free illustrated Catalogue. G. B. LEWIS & CO., Watertown, Wis. 1tdb

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FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 2tdb

A. F. Stauffer & Co., Sterling, Ill.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3tdb

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—Honey.—There is a fair, reasonable demand for table-honey in small packages, and demand from manufacturers is better than it has been. We quote 11@14 as the range of prices for best comb honey in the jobbing way, and 3@7 for extracted honey on arrival.

Beeswax.—There is a good demand for this, which brings 20@23 on arrival for good to choice yellow.

Mar. 23, 1887. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

CHICAGO.—Honey.—The market is without material change. There is no outside demand for honey of any kind, and sales here are from hand to mouth. Prices are weak. Buyers of any quantity could get liberal concessions from figures in previous quotations.

Mar. 22, 1887. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

DETROIT.—Honey.—The market continues same as last quoted; viz., 10@11 for best white comb honey.

Beeswax, firm, with a little more inquiry, at 23c.
Mar. 22, 1887. M. H. HUNT,
Bell Branch, Mich.

ST. LOUIS.—Honey.—We have nothing new to report. Our honey-market is still overstocked, and the reduction in price does not seem to encourage dealers to take hold. Quotations same as last.

Mar. 22, 1887. W. B. WESTCOTT & Co.,
108 and 110 Market St.

KANSAS CITY.—Honey.—We quote white-clover, 1-lb., 11@12. No change in 1-lb. dark, or 2-lb. white or dark; extracted, white clover, 5@5½; dark, 4@5; white sage, extracted, 5@5½; amber, 4@5.

Beeswax, 23@25. Market slow.
Mar. 22, 1887. CLEMONS, CLOON & Co.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

CLEVELAND.—Honey.—There is no change in our market. Best 1-lb. white sells at 13; 2-lb., 10@11. Second quality, 1-lb., 9@10. Extracted, dull at 5@6.

Beeswax, 25c.
Mar. 22, 1887. A. C. KENDEL,
115 Ontario St., Cleveland, O.

BOSTON.—Honey.—We have no change to make in prices. Our sales have been fair, considering the extremely cold and stormy weather we have had the past month.

Mar. 23, 1887. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

PHILADELPHIA.—Honey.—The season is over for honey.

Beeswax sells right along, however; 20 to 30 as to quality.

Mar. 22, 1887. PANCOAST & GRIFFITHS,
242 South Front St., Philadelphia.

NEW YORK.—Honey.—No fancy white honey in our market whatever, and we now have a fair demand for lower grades. We quote:

Fair white, 2-lb. sections, glassed	-	-	-	8c
Mixed	"	"	"	7c
Buckwheat	"	"	"	5@6
Cal. extracted	1-lb	"	unglassed	6@7
				4¾@5¼

Mar. 22, 1887. THURBER, WHYLAND & Co.,
New York.

FOR SALE.—About 300 lbs. of buckwheat and fall honey in 1-lb. boxes, at 6 cts. per lb.

WM. VANAUKEN,
Woodville, Jefferson Co., N. Y.

FOR SALE.—500 lbs. of nice white-clover comb honey in 1-lb. sections. Will ship in 48-lb crates at 13 cts. per lb., or crates returned at 12½ cts. per lb.

B. F. FOUST,
Fredricksburg, Wayne Co., O.

For Sale. Full Colonies of Italian Bees, 2, 3, and 4 Frame Nuclei.

Tested queens before June 1st, \$1.50 each; after, \$1.25 each. Untested, before June 15th, \$1.00 each. After that date, single queen, 75 cts.; six for \$4; twelve for \$7.75. Pounds of bees, same price as untested queen.

7tfdb I. R. COOD, Nappanee, Ind.

FRED'K HOLTKE

Offers 15 Choice Varieties of Greenhouse Plants for Only \$1.00!

Such as Geraniums, Fuschias, Pansy, Daisy, Alyssums, Primula, Roses, Begonia, etc. All plants will be sent by express unless otherwise ordered, as I can send larger and finer plants this way than by mail. I will send enough **EXTRAS** to cover express charges. If wanted by mail, add 25 cts. for postage, etc. As a **PREMIUM**, I will send one packet of Peter Henderson's choice mixed Victoria Aster seed, something very fine. Satisfaction guaranteed. Nuclei, with untested queens, later on.

6tfdb Carlstadt, Bergen Co., N. J.

KANSAS.

COMB FOUNDATION, AND OTHER SUPPLIES FOR THE APIARY.

PRICE LIST FREE. Address

JAS. A NELSON,
5-9-11d Muncie, Wyandott Co., Kas.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address

6tfdb HENRY ALLEY, Wenham, Mass.

1887. BEESWAX 1887.

Made into best Given foundation at reasonable rates, and on short notice. Send in the wax. I have die-books for all the standard frames.

6tfdb JOHN BIRD, Bradford, Chickasaw Co., Iowa.

Fine Premium Italian Bees.

My queens and bees were awarded first premium at the late Chenango Co. Fair. All interested, send for sample of bees, also for my new price list and circular to suit the times, and method of rearing fine queens. Untested queens, \$1.00 through the season. Tested, \$1.50. Mrs. OLIVER COLE,

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Old Reliable Headquarters for
BEES in nuclei or by the **POUND.**

Pure Italian Queens also a specialty. Prices very low. Instructive circular and price list free.

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Vol. XV.

APRIL 1, 1887.

No. 7.

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THE ORIGIN OF THE T TINS.

A FEW MORE SUGGESTIONS FROM DR. MILLER.

ON page 216, GLEANINGS, Mr. Heddon presumes I can tell where removable T tins were formerly mentioned in one of our journals. The first mention of them that I remember in print is that of which I speak on page 39, "A Year Among the Bees," and is in the *A. B. J.* for 1884, page 133. Mr. C. H. Dibbern there gives a description, I think his own invention. They were undoubtedly invented before this, although Mr. Dibbern probably knew nothing of it. I think Mr. D. A. Jones mentioned them at Cincinnati in 1882, but I may be mistaken. In 1883, at Toronto, Mr. Jones showed me a T super, from which I got the idea. This super had the bee-space at the bottom, and the T tins were supported by square strips of wood, perhaps about $\frac{3}{4} \times \frac{1}{2}$, running around the entire inside edge of the super. This allowed T tins to be placed at any point, and also allowed T tins of different lengths to run the long way of the super. To Mr. Heddon I give the credit of the slat honey-board, and I think I would almost go back to wide frames if I had to give up the slat honey-board.

I want to heartily thank Mr. Wm. Drew for calling attention, on page 217, to an inexcusable blunder of mine. I had mentioned that T tins could be used over as well as under the sections; and my idea was, that the same size of tins would do. But a little figuring will show, as Mr. Drew has done, that to use T tins at top and bottom, with $3\frac{1}{2}$ -inch separators, they must not be more than $\frac{3}{8}$ inch deep. I think he may be right, that $\frac{3}{8}$ inch is sufficiently strong; and if so, I see no good reason for making them larger. They can then be used over as well as under the sections. Until the matter is put to

actual test I think we had better not be in great haste to decide that we want any T tins on top. There is no very serious difficulty without them. The sides of a few of the sections are badly daubed with propolis, but most of them are quite free, and the tops are very clean. The bottoms of the sections have a line of glue along the edge of the tin; and if T tins are used over the sections I presume the tops of the sections would be marked the same way. As I have used them (without T tins on top), the tops of the sections look much nicer than the bottoms; and as the top of a section is the part that shows most, I think I would rather have the glue on the sides than to have the top like the bottom. So, although I show my fickleness in so doing, I must advise against T tins on top. Possibly we can gain all the advantages we want in an easier way. If T tins are put on above, I see no use for the side wings, for they support nothing. So take merely a straight piece of sheet iron or heavy tin of proper length, and $\frac{1}{4}$ or $\frac{3}{8}$ inch wide, as the case may require, and we have all the advantage of the T tins without the glue-line. The objection that friend Drew makes, that the last T tin (or straight tin) is difficult to insert, does not hold good with my supers, $17\frac{3}{4}$ inside length. I have just tried it, and they go in quite easily. With only $17\frac{1}{4}$ inside length there may be more trouble, as also in putting in the sections.

Your plan, friend Root, of nailing on the six little pieces of iron at the factory is undoubtedly good—better, perhaps, than you think; for when you have every thing ready you can nail on a great many pieces while the purchaser would be getting ready to nail on the first piece.

I don't suppose I shall ever use an outside shell over my supers (yet I've changed so many times it

is not safe to predict what I will or will not do), but I confess you have the better of the argument; and so long as you can conveniently do so, it may be best for you to make use of the outside shell. But if I must suffer the chagrin of giving up in this, I can twit you of omitting an argument—that your supers are lighter. I count this a matter of considerable importance; for where you are handling these supers all day long, a difference of a pound or more in weight may make quite a difference in the amount of ache you feel at night at your backbone. Please don't come down too hard on me if I should hereafter get to using outside shells

AN ADVERTISEMENT.

I know advertisements are not admitted in the regular reading-columns, but I am in hopes Mr. Root will not notice this one till the printer gets it too far along. I want to advertise that I have no bees to sell, no queens to sell, no hives, no supers, *no nothing* in the way of supplies of any kind, and I hope the friends will save the trouble of writing to me for prices. I am nothing but a bee-keeper, pure and simple. This for two reasons: First, I don't know that I should be successful in doing things satisfactorily, and I love my ease too well to want to be worried over it. Second, if the queen-dealers, the supply-dealers, and the bee-papers, have any right to exist it is because they have a basis in honey-raising as a business that may be desirable and profitable. So I settle on the line that honey-raising is my business.

For one, I want to thank you, friend Root, for your words so kindly spoken of your most formidable rival. The longer I know Bro. Newman, and the more I know about him, the more I think he is a man who has the good of bee-keepers at heart, and whom we should sadly miss out of his place.

Marengo, Ill., Mar. 21, 1886.

C. C. MILLER.

HALF-POUND SECTIONS.

CROWDING BROOD-FRAMES TOGETHER.

I MADE some experiments last season in cutting the 1-lb. boxes in two—that is, cut crosswise, so as to be $2\frac{1}{2}$ inches in depth for holding $\frac{1}{2}$ lb., or about. Theory told me bees would not accept them as readily as full size, and they did not quite; but I do think the plan will work, as consumers will buy a $\frac{1}{2}$ -lb. box when they wouldn't more. These small sections, too, look very cunning and neat. My plan was to use whole boxes on the outside, all filled with fdn. I used separators; and as I use only a 20-lb. case I got very even and full sections. I use and make a side-opening case, with no glass sides, which tend to keep bees out of the outside sections, and, besides, costs more. I am so well pleased with the little sections that I shall use many this season. I also used $1\frac{1}{2}$ -inch sections, full size, $\frac{3}{4}$. I believe they are sure to get the bees at work sooner than a wider box, and can be used quite well without separators. But one great reason for the use of separators is, we can feel sure of even combs, and can remove a single box and insert one with fdn., or exchange outside for the center, and all is well. But when we use $1\frac{1}{2}$ -inch-wide box the case is different, as the bees, of course, are closer, and the combs are nearer to each other; and with only 24 boxes of the narrow ones, separators are not so much needed. One thing is sure to pay;

and that is, to use full starters, or to fill within $\frac{1}{4}$ inch of the bottom of the section.

How one can get along and use only starters in brood-frames, I never could see. I am always getting drone brood in such, yet perhaps a whole hive of starters would come out all right.

A great many ways to get bees into the surplus department have been given. I well remember how the thought of crowding the combs close together flashed through my mind some time in the month of August, four years ago. It was a little late, but I tested it as best I could at that time. The next spring I made a thorough test, as reason told me it would work. I had noticed, when extracting, as I naturally closed combs quite near, that the queen would lay nearer the top than usual; and upon a second thought I said to myself, "Keep them thus, and the bees can't bulge them, and Mrs. Queen will use it, as she uses only $\frac{1}{2}$ comb for workers." The idea was in harmony with her duty. I wrote an article on it for the *Lewiston Journal* that season. I had never heard or read of any such plan, and I was reading four bee-journals and four newspapers. I was and am so well pleased that I make all my frames with half-closed ends, so as to allow only a bee-space. Some would object to frames at fixed distances, but the advantages are to me a great deal more than inconveniences, of loose, uneven combs and frames.

E. P. CHURCHILL.

Halowell, Maine, Mar., 1887.

EMPTYING THE T SUPER.

DR. MILLER SHOWS HOW IT IS DONE.

AS some of our correspondents fail to understand the device and the method of emptying the T super, as described by Dr. C. C. Miller in his book, we wrote to him asking him to get every thing in readiness and put himself in an attitude for emptying the T super. He was then to have his photographer take a view. Friend Miller did as we requested, and, as you will see, has sent us a photograph illustrating the manner of emptying. Along with the photograph he sent the following explanation:

Friend Root:—I have mailed you to-day a photo of myself in the act of taking out a super of sections. The hat on the table is one of my five-cent hats with veil attached. Beside it is a full super. Next is a mallet, roughly padded (it was originally made to jar curculios off plum-trees), to hammer on the upper edge of the super, as explained on p. 91, "A Year Among the Bees." In the book I used a heavy hatchet, or hand-ax, but I like this padded mallet better. On top of the two empty supers at my side lies a stiff case-knife, used to cut through the propolis which may fasten the upper part of the sections to the super. I have just pushed the super nearly half way down over the sections, and the next instant it will drop down to the bottom of the inverted hive-cover, leaving the sections clear, standing on the bearing-board. An extra bearing-board lies on the table in front of me, in which you can see the notches cut in the sides to let the sheet-iron supports of the super pass through. The pantaloons I am wearing are the ones I generally wear in my apiary work, and are Newburgh overalls, for which I paid a silver dollar.

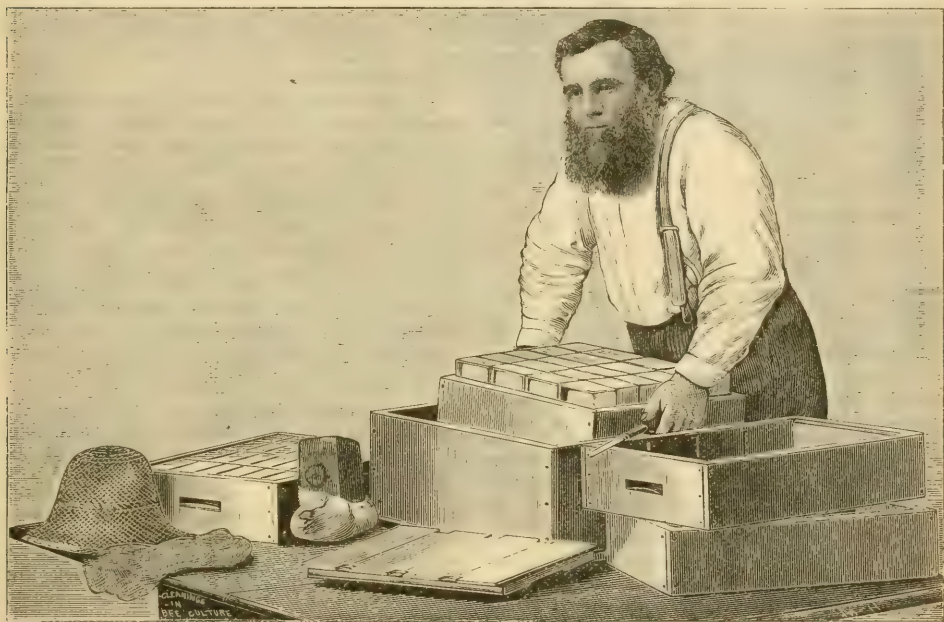
Marengo, Ill.

C. C. MILLER.

In order that our readers may get all the facts clearly before them, we take from Dr. Miller's book, "A Year Among the Bees," page 91, two paragraphs on this subject of taking sections out of the supers.

To take out sections with this arrangement, I place it in front of me on the table—no fastening is necessary—so that the box inside the hive-cover shall be nearest to that side of the hive-cover which is next to me, and the end of the box which comes nearest the end of the hive-cover shall be at my left hand. The bearing-board is now put in place, and pushed tight in the left-hand corner. The super full of sections is placed on the bearing-board and crowded close to the left-hand corner. I now lean forward, throwing the weight of my body partly upon the super, and pressing with the left fore-arm upon the end and opposite side. Then with the closed fist of the right hand I strike upon the further corner of the super at the right hand. This breaks the attachments of the sections at this corner, and then I strike upon the different parts of the super so as to get it started all around. Then

natural look to it. From its appearance we judge that it has seen a good deal of service, and no doubt its owner considers it, ill-shapen though it be, one of the necessary adjuncts to the apiary. Furthermore, I am sure our readers will be pleased to see you with your old clothes on and in your shirt-sleeves. I had a great deal rather take a look at a friend when he is full of business, and attending to his every-day duties, than to see him all dressed up nice and slick, just as the photographer fixed him. All those who have seen Dr. Miller, I think will agree that the picture is a good one. There is nothing like having every thing arranged within arm's reach. Unnecessary steps and unnecessary movements, as is shown in another column, cost bee-keepers a good many dollars. You see, Dr. Miller has directly in front of him one of his bearing-boards



DR. MILLER, AND HIS MANNER OF EMPTYING THE T SUPER.

putting a hand on each end of the super, I push it evenly down and let it drop in the hive-cover. The bearing-board is lifted out with its load of sections, and the now empty super is also lifted out.

It is often better, perhaps always, to run a case-knife around so as to cut through the propolis that may fasten the upper part of the sections to the super. The fist will become sore if used for much pounding, so I use a heavy hatchet or hand ax. With this it is not necessary to strike heavily, whereas a light hatchet must be struck so hard that it would mar the super and not start the sections so easily. It is important to bear down upon the super while striking.

Friend Miller, you have followed our instructions to the letter. We wanted you to look just exactly as you appear when you are at work emptying the T super. Photography, assisted by good engraving, is true to life. I think we all agree, that one of the special attractions of the picture is that old hat shown on the left; it has a very

which he will place on the box inside of the hive cover, as soon as the other has been carried away with its load of sections. At his right are the supers ready to be emptied; at his left are the empty super-shells, all in arm's reach.

Now right here, Dr. Miller, I want to ask if it would not be possible for you to simplify your device for emptying the T super. Why not dispense with the hive cover? I know there is an advantage in having it, as it guides the T super so that it will come squarely on to the bearing-board without any hitching or catching. I believe you state this as a reason in your book; but is this advantage of enough importance to the bee-keepers at large for them to go to the extra expense of the hive-cover, or something similar to it, to assist in emptying a

super? If I were to make a device for emptying the T super, I believe I should make one something as follows: Get a plain board, $\frac{3}{4}$ inch thick, and just wide enough and long enough to slip down easily through your T super. I should, of course, notch it out as you do yours. I should next make a plain box, without top or bottom, 5 inches deep and $\frac{1}{2}$ inch smaller in the outside dimensions around than the bearing-board. Now, under the side of the latter I would nail two cleats. The length of each would be equal to the inside width of the box. These cleats should be nailed on this bearing-board, so that it will set on top of the box, leaving it projecting $\frac{1}{2}$ inch all around. Now, to empty the super I would place it on top of the bearing-board, being careful to get it squarely over. I should then empty the sections by crowding down the shell of the super as you do. This plan for emptying the super, I offer as a suggestion, and our readers can decide for themselves. You will notice that the only practical difference between emptying the T super as described by you and as I describe it above, is that I would dispense with the hive-cover. Perhaps the use of the latter embodies other advantages aside from the one I have mentioned.

ERNEST.

ECONOMY IN LITTLE THINGS.

ESPECIALLY ECONOMY IN LABOR.

THE one thing that confronts us just now in this age of progress is the expense of the labor required to do what we want to do. The farmer says he can not raise crops at the prices offered, and afford to keep hired help. If his boys will stay and work on the farm, he can afford to keep on farming; but when it comes to employing the average hired man, he can not do it. We meet this at every step. Many women prefer to do their own housework, because they can not afford to pay the prices for competent help, and so we are absolutely obliged to continually come back to the problem of making a little strength do a large amount of work. Just now I have one thing in this line, in mind. It is a thing I have spoken of over and over again; but I have been thinking this morning, a little despondingly, that, even if I keep on talking of it all the days of my life, there will be almost as much need of it when I get through as when I began. It is a sort of heedlessness that seems to cling to almost everybody. I do not know but careful housewives who do their own work have learned somewhat of it by sad experience; but the people I employ seem to be, a great part of them, a good deal alike in this matter. It is in preparing things convenient at hand, when we start out to do any work. The printers here in the type-room have been obliged to study this matter, for they work largely by the piece; and printers' cases have been planned with much thought and ingenuity, to save having the hand travel over even an inch of space uselessly. Go and watch a

letters he is obliged to pick up. Now, after you have watched the type-setter, go down to the garden and see the boy trimming onions for the market. Two large piles of onions lie before him. It is early in the spring, and they are small, so there is a great deal of handling necessary. Well, you will be almost sure to find him with each pile so arranged that he must change ends for each onion he picks up; and then when it is cut and peeled he must change ends with the same onion again before he lays it down. This reaching and twisting of the wrist so many times tires him, and makes his back ache, besides taking more than twice the amount of time needed to do the work. Now, it is not a big job to turn the whole pile the other end to, because he has them on a light wooden tray, and the tray could be swung around in an instant, or he could walk around and sit on the other side, then there would hardly be any need of picking up the onions at all. He can cut off the roots, peel off the outside covering, and just push them into the next pile, leaving the tops almost unmoved.

The girls who are picking over the beans, of course want three dishes—one to hold the raw material, one for the bad beans, and one for the good ones. Well, unless I get my eye right on them when they start out they will have something a great deal too large to be handy, to hold their beans—may be a half-bushel measure or a bushel-box. Then they will get these three receptacles arranged so their hands must travel a long distance to get them out of one box and put them in another. The consequence is, they are a great while longer in doing the work than is necessary; and when tired out because of these waste motions of the hands, they do not know what tired them. It is true, the one who has charge of them, and sets them at work, should fix their boxes so that the beans will have to be moved only a few inches instead of feet (just like the types in the printers' hands). But I have sometimes felt as if mankind in general objected to these easy short cuts in doing work. A woman who does her own housework, and has the care of three or four children, learns these short cuts because she is absolutely *driven* to it. I tell you, my friends, it is a good thing for us to be now and then where we are *obliged* to economize.

All over the factory and over the grounds, I continually find people doing work in the same way. One hand will be writing the name of a certain article on the outside of a package, over and over again, when the printers in the next room would print it ten times where she could write it once. Somebody who is putting goods upon shelves will get up and down for each single article, when elevating the box or basket up to a level with the shelf would enable him to do the work quickly, safely, and nicely. Farmers often do the same thing in carrying water down hill to their stock, where some sort of a cheap wooden spout could be made in an hour so as to let the water run itself. Other people will carry heavy burdens, long distances, when a little forethought might have had the commodity de-

posited almost right on the spot where it is to be used. The consequence is, a hired man or hired girl has to be called in, when a little forethought and a little looking ahead, and planning, might have saved expensive hired labor.

The worst part of it, however, is the point alluded to in the middle of this article—doing different kinds of handwork, laying pieces of bee-hives or section boxes on the table in such a way that you will be obliged to turn every piece you pick up, end for end, before you can use it, and may be doing the same thing before laying it down again. In nailing up work you not only want the right sort of hammer, and the right sort of nails, but you want a good solid bench to pound on. We have just had some cast-iron slabs made, 2 ft. long and perhaps 18 inches wide, to be laid on top of our work-benches, to pound and nail on. The slab is solid iron, one inch thick or more, and the upper surface is planed smooth and level. Now, if you want to see how much such a thing is worth, just try nailing up work on a common wooden table, and then try it by placing your work on one of these iron slabs.

The other evening Frankie was putting section boxes together with a little wooden mallet. I told him to take his basket to one of the low benches, where he could drive his work together on the iron slab, and see the difference. Why, a very light tap of his mallet sent the joint home when he would have had to pound several times on the bench where he had been working with only an inch pine board to lay his work on. Try nailing up a bee-hive by having it rest on an iron anvil, or get a huge block of stone, and make the top perfectly level and smooth. You can smooth and level the top of any stone by first getting it chipped off by a mason, then lay a slab of stone on top of it, and grind it smooth by pouring on water and rubbing it back and forth. Whenever you have any kind of work where you have to do the same thing over a hundred or a thousand times, it will pay you to spend a little time in getting every thing just as handy and convenient as it possibly can be. If you build the fire every morning in the year, have matches, kindling, shavings, firewood, a sewing-machine oil-can filled with kerosene, or whatever you use, right close at hand; but have these materials neatly put away at the same time. Now, then, when you are replenishing the supply, get enough to last.

We have a great many orders for samples of honey, maple syrup, etc. Now, if I did not almost *fight* about it, somebody would go down stairs after one bottle of maple syrup. Perhaps this person would try to fill a little bottle by pouring the syrup out of a jug. May be, before he got through some would be spilled on the floor, some on the clothes, and some on the fingers; then a cork must be hunted for the little vial; then a block of wood with a hole bored in it to put the vial in, so it can go safely by mail; then somebody must whittle a plug and have it sawed off. Then the mailing clerk must write on the block, "Sample of maple syrup." Then a piece of stout paper must be

hunted up to wrap the package in securely; then some stout string to tie the paper, and then a pair of scissors to cut off the string.

It is finally ready to be addressed; but in doing it, various utensils have been taken from their places. Some clerk is wasting time hunting for his saw, and grumbling because somebody didn't put it back. The same way with scissors, and the same way with string. Do you wish to know the remedy? I will tell you. If we shall probably need 100 samples during the season, get 100 vials just right; then 100 corks just right; then have 100 blocks of wood cut out and bored just right; stoppers to match, and blocks, are made at the same time on the turning-lathe. Some woman is then set at work at it, who has done similar work before. A combined tunnel and measure is taken from the counter store. This utensil will fill a small bottle with any liquid, without wasting a drop, for the nozzle attached to the cap will go right into the bottle. When all are put in the bottles and corked, 100 pieces of stout paper are cut exactly right; then the printer prints a label, saying, "This is a sample of — gallons of molasses that we have for sale," also giving name and address of the man who made it. One of the girls who is expert in tying up packages then ties the whole lot at once. If they are to be used soon she also puts the postage-stamp on, and they are put in a neat little basket right close to the mailing clerk. The cost of putting up the whole hundred has not exceeded 50 cents, or half a cent apiece, after the materials are all got ready. The former way it may very likely have cost 10 cts. to put up just *one* sample bottle. In other words, we have, by an outlay of 50 cts. in labor, accomplished what might have cost toward \$10.00. Now, even though you should not need more than 50 of the packages, you will make money if you never make any further use of the last 50 at all. If you look about you and see what is going on you will see this thing repeated almost every day, and, to a greater or lesser extent, in every household. Of course, you must use judgment in deciding about how many of each thing you are going to need in the course of the year, for it does not pay to have a great lot of waste material lying around; but if you make it a study, you will be astonished to find the possibility of economizing in labor by doing little things of this kind all at once, instead of going over the long laborious routine every day or every few days.

THE HONEY EXHIBITION AT THE OOLONIAL.

HOW OUR FRIENDS ACROSS THE WATER DISPLAY HONEY.

WHILE our friend James A. Abbott, of Southall, London, England, was visiting us a few months ago, among other things which he brought from his native country he showed us some fine photographs which he himself had taken with his own instrument. Mr. Abbott is a natural genius; and among his hobbies, if

I may be permitted to call them such, is photography. While at the Colonial, which took place at South Kensington, England, last October, Mr. A. secured some fine views, representing some of the choicest displays of a few of the exhibitors. Among the number of photographs which he showed us, there was one which especially attracted our attention; and as the photograph was a fine one, we concluded to have it reproduced in GLEANINGS by the Ives process, a process which imitates photography very closely. While the outline is not as clear and sharp as an ordinary wood-cut, we think the general effect is quite pretty. It gives a very excellent idea of how things must have looked in the building where the exhibits were made.

decorations; and, if we are not mistaken in what we see in the picture, they even had tropical plants interspersed here and there. On the right are two globes, which we suppose to be electric lamps. If the exhibition was lighted by electricity at night, the general effect must have been very pretty. The display of honey was not only very carefully arranged, but it was a very large one. Our friend D. A. Jones, of the *Canadian Bee Journal*, estimates that the exhibition building where the view was taken is about 27 ft. wide, 96 ft. long, 12 feet at the sides, and 27 ft. at the gables, with a self-supporting roof. The friends across the water, as well as the Canadian commissioners (who took no small part in this display) are to be congratulated for their enterprise in thus taking advan-



A VIEW INSIDE THE COLONIAL EXHIBITION.

From the picture our readers will readily gather that the English have a fondness for making large and elegant displays of honey, both comb and extracted, in various sizes and kinds of packages; not only that, but they take great pains to make each package look as attractive as possible. You observe in the long row of exhibits shown in the foreground, that some of the counters are arranged in pyramids, and others in terraces. The arrangement is certainly very artistic, and the effect must have been pleasing.

If our memory serves us correctly, Mr. Abbott informed us, when here, that there was not only one row of exhibits like the one shown, but there were six others of equal size and beauty. As if the display of honey were not fine enough in itself, our English brethren have summoned the aid of floral

tage of this very potent means of advertising. We learn that this honey-exhibition was of such general interest that the English papers gave quite flattering notices of it—notice which were calculated to tickle the palate of the English people at large for good pure wholesome honey. We also learn that the Canadian exhibit of the Canadian commissioners attracted no small amount of attention, both as regards the quality of the honey and the style of package. "Amateur Expert," in the *C. B. J.*, gives it as his opinion that the commissioners must have realized \$5000 from honey sold. So much for advertising in this way. Would that we Americans, with all our push and inventive genius, might bestir ourselves to something more extensive in the way of honey-exhibits! The only real honey-displays that we get up here are those made at our county fairs,

which, in comparison with those displays of the English, are very meager indeed; and even the exhibits at our State fairs are rather small in comparison with what they ought to be, as a rule. Our friend J. H. Martin, however, whose exhibit we showed on p. 89, is rather an exception. But the English people are vastly in advance of us in the art of getting up a first-class honey-display; and even our Canadian neighbors across the line are leaving us rather behind. If there were more of this disposition to show our honey before the masses, and thus utilize one of the best means of advertising, we firmly believe there would then be less cause of complaint over the low price of honey, and less uncharitableness toward the middlemen, and, at the same time, the press of the country would receive a more intimate knowledge of the manner and method now practiced for producing honey. They would see that it is possible to produce honey by the ton honestly. It would not only do much toward advertising our products, but do much to counteract the false statements in regard to our favorite pursuit.

ERNEST.

OUR CELLARS.

FRIEND TERRY ON THE VENTILATION OF.

FRIEND ROOT:—When going around the country in winter, attending farmers' institutes, I am often taken down cellar to see the potatoes, you know. Quite possibly I have noticed some things that the owners did not. Not always, but in the majority of cases, perhaps, the cellars under our homes are not properly kept, according to the best light we now have. This is my excuse for what follows:

You know very little of the health-giving sunlight, which I have urged the lady readers of *GLEANINGS* to let into their homes, gets into the ordinary cellar; in fact, we do not want it there, if we store vegetables therein. Potatoes in particular should be kept in the dark. Very often the cellar is damp as well as dark, and it is rarely ventilated. Perhaps it is banked up in the fall, and left closed, so far as doors and windows are concerned, all winter. Now, we know that sunshine and dryness and ventilation are necessary to make the air in our houses healthful. The air in the cellars having almost none of these, it must be more or less unhealthful. Then, again, probably in the majority of cases, there are some rotten vegetables to be found therein, or an old pork-barrel with stinking brine in it. Perhaps the ceiling is covered with cobwebs between the joists (I wonder if the ladies know how much cobwebs have to do with hastening decomposition sometimes). In such a cellar you will see mold on the wall, and the air is full of germs, or spores. Let in a ray of sunlight through a small hole in a curtain, and you can see these plainly with the naked eye. Hold a candle under this streak of floating germs, or particles, and instantly they are all destroyed above the blaze, whether they are vegetable or animal, and you make a dark spot in the streak of light, as there is nothing there to stop the light, and hence enable us to see it. Now, all will agree with me that the air in such a cellar is not such as we ought to breathe. But some one says, "We do not live

down cellar; what is the difference? We can stand such air for a few moments while we are necessarily down there." Well, let us see. What is there between your cellar and the rooms above where you do live? Just a matched-board floor and a carpet, perhaps, and the stoves have dried the boards so the joints are quite open. This is the way it usually is. Now, in the winter you have fires in your houses, and these fires take considerable air out of the rooms, particularly if you have grates. More air must be sucked in. Some will come in around the doors and windows; some will be drawn up through the floor. The tighter the doors and windows, the more will come from the cellar. Come it must from some quarter. Then won't you have to breathe it? Do you doubt that the impurities in the air will come through an inch board? At the institute in Marietta, Dr. Carl Leo Mees, of the Ohio University, passed coal gas through a brick. It was brought to one side in a pipe, and collected in a pipe on the other side, and lighted, the brick being covered with a gas-tight substance. Dr. M. told us that air would go through just as easily, and that all injurious germs would go with it, as he could show us. Now, I think all will say that the air would go through a half-open floor more easily than through a brick, and take its impurities with it. At any rate, our best scientific authorities now tell us that this is the case.

Again, some persons may say, "We have breathed these germs for years, and no harm has come of it; what is the use of worrying?" As Dr. Mees said, these germs may not of themselves be injurious; but suppose they have found lodgment in your lungs, partially filling up the air-passages, and then pneumonia comes along, and you need every bit of air-space you have got. These "harmless" germs may then cause your death. Or suppose some tramp or peddler brings into your home on his clothes a single germ of an injurious kind that can feed on the germs already in your body. It gets deposited there, and finds a splendid feeding-ground all prepared, and multiplies with lightning-like rapidity, and perhaps within a week an entire family dies, or the larger part of them. We often hear of just such cases. You may say this is theory; but do not facts go to prove it? When disease breaks out, such as diphtheria and scarlet fever, think where they rage worst. As long as scientists teach only what accords with common sense, we had better give heed to their doctrines, even if we do not fully understand or fall in with the germ theory. They do not fully understand it themselves; but they are making rapid strides in that direction. Well, now, practically, what shall we do? In a word, keep the air in your cellars *just as pure as you can*. Because the cellar is out of sight, do not let it be neglected. Keep it just as clean as any room in the house. There is no other safe way. First of all, make it *dry*. In selecting a place for a house, always choose a dry piece of land. If the house is already built, do not spare drain-tiles and labor until you have made the cellar as dry as possible. Next, plaster it overhead, without fail. Air will not go through mortar nearly as easily as through a brick. Then put building paper under your carpets instead of straw. Be sure to whitewash your cellars all over once in a year or two. Have a cement floor, and keep it clean. If you have reason to suspect there is any thing wrong (it will do no harm any way), fumigate

it by burning rags first dipped in melted brimstone. When it will do no harm, let in the sunshine. Most of all, do not allow any decaying vegetable or animal matter to stay in it. Now, then, my masculine friends, do not make your wives see to this. They have enough to do; but tend to it yourselves, as you value the lives of your dear ones. One may live over a damp filthy cellar for years, and not pay the penalty; but he can not tell how soon a day of reckoning may come. He may bury every child within a week. If science teaches any thing whatever plainly, it is that pure air, sunshine, and pure water, are the best preventives of disease. Make the air of your homes (cellars and all) as pure as possible. Under this head you want to look out for the slop-drains, or about emptying the slops always in one place. The safest way to manage sewer-gas is not to have any. This is the way at our home, as told of last year. About drinking-water, in my next letter.

T. B. TERRY.

Hudson, O., March, 1887.

Friend T., I am with you exactly in every word you say. Our cellar, where the steam-pipes are, contains nothing whatever. We got it up so high and dry, and put in so many windows, that it is too light and warm to keep anything, so we just partitioned off another part for our vegetables, etc., and this part can be aired and dried and sunned just as much as any other room in the house. By having it warm, we always have the floors of the room warm. We thought once we had got our cellar too high and too dry, and so it is for a potato-cellar. But I believe, especially after reading your remarks, that we can afford to have a potato-cellar somewhere else.

Now in regard to looking after our cellars, in a sanitary point of view: I have just returned from a visit to Prof. Cook's. While we were walking across the fields I was speaking of the wonderful progress we are making, and I asked him what he supposed the outcome was going to be of our wells of natural gas. He said that it would probably be beyond the conception of any one living, and then remarked that the next great stride to be made in science would probably concern human health and disease; and in answer to a question of mine, he said that it seemed to him quite likely we should soon have complete control of fevers, and diseases of kindred character. Now, then, it occurs to me, since reading your article, that perhaps we are beginning the march by taking up first the cellars that are under our houses.

OUR P. BENSON LETTER.

FEEDING OF BEES.

SUM people thinks bees ken feed thairselves, but that izzent sighthentfiek. Thay is diferent waze. 1 way is to feed them with a tea spoon. A table spoon is too big; thay let it run out of the side of their mouth. Throw your left arm around the bee's neck, while you hold the tea spoon in the right, and hug him pirty tite till he begins to gasp for breth, & then kwick pore the spoonful of feed down his throte. This

way is not to be reekommended, for the reeson the bee is ap to strangel & coff, & waist the feed.



P. BENSON SHOWS HOW TER FEED A BEE.

Next the simplissity feeder. Lookin at it with a inexperienced i this seems like a good feeder. But it izzent. You see the troublle is thair is no place in partickler for the bees to go in & out. Suppose the bees start in for the feed, and a ro stands all round the feed soze no more ken git in. Them that cums next will stand waitin for a chants to git in, and when the first wuns gits filled thay will turn round and find the way all blocked up by the 2d wuns. So eech 1 will wate out of polightness for the uther to git out of the way, & neather ken git by the uther & so thale jist stand thare and wate & the thing woont wirk.

That's the buty of sigents. Now a common man wood hefto taik a simplissity feeder and giv it to the bees to see if it wood wirk. But a grate Sighentist like me ken think it oll out in a phue ows & see that it kant wirk, and then he doant need to try it.

Then thare's the shuck feeder & uthers witch mite be good, oonly the bees hefto wirk in the dark, and thay kant do that. Hwo ever herd of a bee gethering hunny from clovur in the dark? Thay doant wirk that way.

The only proper way to feed bees is with P. Benson's (thats me) patent, reversible, trantsparent, youreeky bee-feeder. This consists as herein set 4th substanshelly as folloughs, viz, to-wit:

A feed chaimber (see A in the pickter) or its equivalent, in combinashen with a apertoor B, or a apertoor B in combinashen with a feed chaimber A, substanshelly, or its equivalent and for the purpusses set 4th, the whole to be constructed of vitreous glass or its equivalent, and the apertoor B, so constructed that exit and entrance to the feed chaimber A, may be effectoolly surceased through the apertoor B, by means of the thum of the operater, preferably that of the right or left hand, plaist upon the apertoor B.



P. BENSON'S
PATENT RE-
VERSABLE
TRANSPARENT
YOUREEKY
BEE-FEEDER.

To operate the feeder, the apertoor is left open a suffisient lenth of time for a suffisient number of bees to enter the feed chaimber A, then the operator poots his thum on the apex of the mouth of the apertoor till the bees are seen to have filled thairselves and arraing themselves in a boddly at the apertoor to git out. The thum bein removed thay rush 4th in sitch a boddly as to carry all before them, when a noo force enters as before.

P. BENSON, A. B. S.

MRS. HARRISON ON DISPOSING OF OUR HONEY-CROP.

ESTABLISHING HONEY-ROUTES, ON THE PLAN OF MILK-ROUTES, ETC.

THERE is no subject before the house that comes nearer to us all than the best way and means of disposing of our honey. If a bee-keeper loads up his honey and ships it to a large city, and sits down to smoke he will, in many instances, have time for a pretty long smoke before he has any returns for his season's labor.

There are few localities where there are not more than one hundred colonies kept, which would not be able to consume all the product. I once stopped at a farmhouse, five miles from any town, where forty colonies were run for extracted honey. The proprietor said, "I never take away a pound of honey; the neighbors come with their jars and pails, and take it away, and I could sell much more if I had it. I can not half supply the demand."

Farmers formerly, in Illinois, consumed large quantities of molasses. They bought it by the barrel or in kegs. Emigrants from Pennsylvania missed their fruit-butters, for which they are so famous, and the large family of "spreads" scoured through the woods in search of wild plums, grapes, and berries, and finally succumbed to the inevitable, and ate molasses. Since the advent of glucose-factories, molasses and syrups have gone by the board. Fruit is more abundant than in the early settlement of the country, but it does not entirely fill the gap. This class of consumers are almost entirely neglected by producers. They think honey is something to be sold to town-folks. How one of our Western farmers would laugh if you should ask him to buy a pound of honey! "A pound of honey? Why, that wouldn't be a lap. Bring me fifty or one hundred pounds." He has no use for a ten-cent package.

Those who farm here have large families; if not many children, they have work-hands, comers and goers, and there are few days when strangers do not sit down to their tables—agents, peddlers, etc. What a bonanza would honey be to the over-worked wife! It needs no cooking; she doesn't have to stand for hours, either, over a hot stove or by a fire out of doors, with smoke or ashes in her eyes, moving a stirrer back and forth all day, and at night till the clock strikes the little hours, to finish it off as it boils and sputters. This class needs instructing in the use of honey, and they could be easily taught, if it were only brought to their notice.

We never shipped any honey more than once, and that was owing to the severe illness of Mr. Harrison; and if we had employed the young man who packed and shipped it to have peddled it out, we should have saved money and worry, as he had been in the peddling business. During the winter, in most localities, there are plenty of young men out of employment, well fitted, with a little instruction, to sell honey. It would be better to trust them with our property than to ship it to entire strangers.

I'm not ashamed of the business, but proud of it—glad that I'm a producer of a pure sweet. In peddling honey, the better way when it is sold from house to house would be to go forth as the apostles did, by twos. One could drive the team, and abide by the stuff, while the other could exhibit the honey and solicit orders. The best assistant would be

one who has been over the ground before. A honey-route, in time, would have a commercial value the same as milk-routes now have. A family that uses honey at all buys a good deal, while there are others who can not be induced to use it; and in going over the ground the second time these could be left out.

Large producers must, of course, seek distant markets; but "it is the little foxes that spoil the vines." Small producers must sell their own honey at home, if they would succeed. Make honey legal tender for every thing they buy.

Peoria, Ill.

MRS. L. HARRISON.

You make a good point, Mrs. H., where you say that honey needs no cooking. Many times I have brought company home unexpectedly, and I would hear my wife say, "Well, there is *one* thing they can have right away, and that is some nice honey. Probably they are not used to it, and it will be a treat to them, and it can be produced in a twinkling," and it always turns out as predicted—it is praised and relished. And, by the way, you remind me of the time when mother and I used to make apple-butter away along into the night. Sometimes the wind was contrary, and blew the smoke into our eyes, etc. Your idea of having a honey-route, something on the plan of a milk-route, is certainly a good one. As honey is not perishable, of course the trip need be made only at intervals of a week or even more; but I am sure a regular system of this kind would pay well.

THE KITCHEN AGAIN, AND THE BEES.

MRS. AXTELL DISCUSSES WHETHER WOMEN ARE CAPABLE OF MANAGING AN APIARY.

OUR kitchen, I think, is the most cheery room in the house. A bay window is in the south; and on the north door, where the screen-door fits in in summer, is a tight-fitting wooden door, thus making a double door. There are two window-sash for the window, making the window double. This makes our kitchen very warm, light, and sunshiny—almost like summer in zero weather when the sun shines, and my four canaries seem to think it is summer, as they fill the house with their sweet music, seeming to sing because they can't help it. One would be surprised at the warmth the sun gives, as it reaches half way across the kitchen. In the upper half of our south door is a glass window, so that almost the whole south side of our kitchen is glass. In summer time the windows are all raised except the one in the door; and by the use of our gasoline stove the kitchen is about as cool as outdoors.

Our apiary is located just south of our kitchen, so that, when the bees swarm, we can readily see each colony and be on hand—a great convenience to a bee-keeper.

The sides and ceiling of our kitchen are finished in wainscoting, the whole painted a reddish pink, which does not grow dull or dusky by age, as blue or brown colors do if smoked a little. If finished in hard wood it is very easily washed. In cold weather, when boiling clothes, and the room is moist from steam, a soft cloth pinned around a broom, and the

steam wiped off the ceiling and sides of the room occasionally, keeps the room clean and healthful.

I do not think it healthful to live above a cellar, unless the greatest care is given to remove all decaying vegetables, and moldy boards and barrels, and dead bees from the bee-room. One winter we went west for a visit, and were gone one month. We left the house unused, except as our hand came into watch the temperature in the bee-cellar, and to open the cellar door when too warm. When we came home the rooms were dripping with moisture from the bees (about 125 colonies in the cellar). Even on the door of the clothes-room, water stood on the inside in great drops, and the bee-room is plastered overhead. There seems to be a great deal of moisture exhaled from the bees, so that it is well to have a stove in a cellar to keep the bees dry as well as warm; if damp and then cold, I think it gives them watery honey, a cold, and the result is the dysentery.

Our bee-cellar is 20x20 feet. In it we have at date 113 colonies, packed above and at sides of brood-nest with straw. We find, at a temperature of about 42°, our bees keep the most quiet, so that we have had to build a fire in the bee-room a good many days this winter. A few times the room became heated to 60°, but no harm ensued. By opening the ventilator (sub-earth) and cellar door it soon cooled off sufficiently, and the cellar walls seemed dried off. The air being purified, the bees were still and quiet. Bees need pure air as well as human beings do. If the cellar smells impure, the bees become uneasy, even if the temperature is all right.

The past season has been one of prosperity to us. Honey has been low, but every thing else has been correspondingly low. I do not think we should be discouraged at all. Each one should develop his home market, and trade as much of his honey as he can for things he has to buy. We have never had a season yet but that we could have sold much more honey than we had. We ship the greater part of our honey to Chicago.

Last winter we lost but four colonies in wintering, and those were nuclei. We united late, and did not know that queens were accepted.

We began the spring of 1886 with 130 colonies. Our increase, by natural swarming and building up nuclei, was 77, and we took 12,000 lbs. of comb honey. We keep our bees in two apiaries. Mr. Axtell takes care of the one from home, as I have often mentioned, while my hired girl and I take care of the one at home, and do our housework. I don't see but that we are just as successful as he is, and he as we are.

HANDLING FRAMES INSTEAD OF HIVES.

We manage our bees without lifting the hives very much, as neither of us is very strong, and hives are heavy; but we carry frames instead of hives, or, if necessary, take hives to pieces and carry in parts, as they are not nailed, but clamped at corners with a movable bottom-board. If it becomes necessary for me to work alone, I have a small express wagon, as it is called. I can work a rack out backside of hive, and place upon the wagon, and pull it into the honey-house; or if in a honey-harvest, I can pull the rack of honey out back of hive and let it stand upon a nail-keg until noon or night, and have the hand carry it in. I have not for years dared to carry a pail of water, and yet I can do all necessary work with bees without over-lifting; yet it pays me better to have a helper with

me to do what lifting is to be done, and to take steps for me.

I often get stung, but I do not fear bees any more than I would sitting hens—not half so much as I do our cattle and horses.

If a person is able to do any work at all, I can not see why bee-work is too hard, as bee-work is easier for me than housework. I look forward with pleasure to the coming spring, that I may again live with my bees. No months are so delightful as May and June, when I entirely release myself from all other work as much as possible, and live with bees, birds, and flowers. Before the summer is ended my health so much improves I can do as much or more bee-work than my husband, though, perhaps, I can not go through as many hives as Ernest can.

Roseville, Ill.

MRS. L. C. AXTELL.

Perhaps I should explain to our readers, that Mrs. Axtell uses a closed-end Quinby frame, therefore she can take the entire brood-nest, or a part of the brood-nest, out of the hive, leaving the bottom and sides undisturbed. We are very glad indeed to hear of the good report you made again last year, and we are also very glad of the suggestions you make in regard to having air and sunshine in our kitchens. As you are suffering from poor health, you are probably, like myself, more sensitive to the lack of air and sunshine than most people; but the very minute I am writing these words I feel that I must get out into the open fields, and into the bright sunshine. I have been all over the factory, looking after things that needed my attention and suggestions, until my brain is tired; in fact, I feel just now as if there were but little left of me, any way; but I know by experience that half an hour outdoors, where nobody shall ask me any questions, and where I shall not be importuned to read something, and *read it understandingly*, will make me feel like a good strong man again. It seems to build me up, as it were. I have been so many years reading these letters, and deciding on the contents, that I have lately got into the habit of reading a letter clear through, and not knowing a word of what I have read. My reasoning faculties refuse to "catch on" unless they are obliged to by mental effort, and I find it is as necessary to get outdoors among the chickens, or down in the lots by the brook, and dig in the dirt, as it is to take my accustomed food and sleep. God made the open fields and outdoor air and the sunshine; but I have sometimes seriously questioned whether he ever intended that man should make kitchens and offices where human beings were to be shut up, say more than half of the hours of daylight. At this time of year we have about 12 hours or more of daylight. Now, if I could take every other hour outdoors I could accomplish a good deal. I presume likely I should enjoy it to be outdoors during *every* hour of the twelve, but that can not very well be. This we can do, however: We can have lots of windows without any curtains to them, and we can have them swing open so easily, or rise up by weights, that even invalids like you and myself (?) will not dread the effort required to swing them wide open when the weather will permit.

The trouble with me is, that few people can bear the amount of air and sunshine that I crave and revel in; but I think it would be better for them if they could bear a little more. My wife visited a sick-room recently. She said, when she got home, that, if she could have her way, she would have a stove and fuel equal to the task of keeping the room warm for the patient, with one or more windows open all the while; and in talking with the doctor about it afterward, he said he honestly believed such a course would do more good than medicine—that is, as a matter of course, getting the patient *gradually* accustomed to so much air and sunshine. When I am obliged to stay indoors when I do not want to, I have found an open window to be the next best thing. Of course, I want to be clothed accordingly, and I want to sit facing the window, which should be open on a side of the room where there is not too strong a breeze. None need fear that they are going to be harmed by this sort of medicine—that is, it is a sort of medicine that leaves no poisonous drugs hanging about the system.

SENDING TO MR. ROOT FOR GOODS.

SOME HINTS ON BUYING IN GENERAL.

EVER since Mr. Root commenced selling the sort of goods in which he now deals, I have traded with him; and having some experience in that line I think it may be a useful thing to give the friends some of the benefit of my experience. I find that many things on his list are so much lower than usual prices that I can well afford to pay a pretty heavy rate of freight. But it does not pay to send for a very small quantity in some cases—perhaps in most cases—unless it be something so light that the postage will be little. For instance, I am partial to Dixon's axle-grease for wagon or buggy, and can not get it here. It is on the 10-cent counter; but a 1-lb. box sent by mail would cost 28 cts. postage, and that would make the box cost me 38 cts., at which price I would rather use some other kind. If sent by freight, a single box would cost me still more; for in sending freight the railroads charge so much per hundred, perhaps \$1.00 per hundred from Medina to Marengo (may be less than that, but that figure will do for illustration), but a minimum price is fixed upon as the least charge for a box or package, no matter how light it may be, and this minimum price, I think, is usually the price for 100 lbs. Mr. Root will correct me if I am wrong. So, if I send for a single box of axle-grease by freight it will cost me \$1.10—worse than by mail. If, however, I sent for 100 lbs. or more of goods, the freight would cost me only about one cent per pound; so by sending for quite a number of articles at a time I can save money by getting them from Medina. I think many others at a distance might save in the same way, so I will tell how we manage.

About once a year, or oftener, we take Mr. Root's price list, look it over carefully, and check such articles as we want to send for, perhaps letting some of our friends know of it, and letting them send with us. The difference in price of a single article may sometimes pay the freight. For instance, I bought a force-pump and paid \$2.00 for it in Ma-

rengo, feeling quite satisfied with my bargain; but in a short time Mr. Root advertised precisely the same thing for \$1.00. By thus looking over the list, and checking off those things that we need, or will need, within the year, we can make out quite a list; and the danger may be, in some cases, that Mr. Root's price list is so attractive, and so many things look cheap, that things not needed will be sent for, with the thought, "It's only 5 cts. or 10 cts.," but enough of these low-priced articles will amount to a considerable sum, and it is a good plan to buy nothing that is not really needed. Now, I will tell you about some of the things on the list, only a few, for of course we have not had all. Mr. Root has, of course, told about them, but it may be a good plan to know what others, who have tried them, think. First, there's wire nails. I don't buy of him now, because I can buy at home, and freight is heavy; but if you can't buy at your own stores you ought to send for at least a few of each kind, from ½ inch to 2½ inches, and you will, I think, never want to be without them again. Of other bee-keepers' supplies I will not speak, as you know probably what you need in that line.

Now take the list of the counter store, and glance over it. On the 3-cent counter, among the glass-ware, you will find some 2-cent articles made of wood. Never mind the incongruity. They are basswood nest-eggs, and I think look more like the genuine article than any glass or porcelain ones I ever saw. Then on the same counter are pins at 3 cts. a paper. Cheap, but I wouldn't buy them if I were you. They're iron; and wherever you use one, if it gets the least damp, through perspiration or otherwise, it will rust and spoil the clothing. But on the 5-cent counter you will find some excellent ones at the rate of about 60 for a cent, and you will probably pay a good deal more for them at your store. You can also get a pyramidal cushion of pins on the 10-cent counter, but they are no better pins, and no more of them, than in the 5-cent papers, and the cushion is not convenient to use over again, as it is simply a paper of pins rolled up and finished off quite prettily.

You can get some fine bargains in tinware from Mr. Root, if you understand what you want. Let me tell you something about buying tinware. The other day we got a box of goods from Mr. Root, and among them a 6 and 8 qt. pail. They are of light tin, and, used for water-pails, would last only a short time, or for any purpose where they are kept wet or washed very often. For such use it would be economy to pay twice as much for a pail made of good heavy tin. But I didn't get them for that purpose. It is real handy to have plenty of covered pails in which to keep cake, cookies, fried cakes, etc., and these light, cheap pails answer just as well as any for this purpose, or for any thing where they are generally kept dry. For milk-pans or any tinware wet or washed much, I find the higher-priced articles the cheapest in the end, and the re-tinned goods are especially desirable. Of these, Mr. Root has some away down below what I can buy them for at the hardware store, and they are beauties.

On the 5-cent counter are coal-shovels; and it's so handy to have one in each place where they are likely to be used, that I have four of them in different places. If I kept only one, and had to run for it each time I wanted it, the time thus spent would be worth a good many shovels.

If your wife has always used a wooden potato-masher, just get her a wire one off the 5 or 10 cent counter, and see how pleased she will be to have something so light and nice, making quicker and better work. I don't know of any way in which a small sum of money can be spent to give greater satisfaction than by getting a lot of these household conveniences for the benefit of the women-folks; and it's wonderful what patience they display in working along year after year with a scarcity of utensils that would never be endured by men-folks. There's the matter of pot-covers. I've seen them struggle along month after month, making a plate or a pie-tin do duty as a pot-cover, and do the duty very poorly at that, when all the time Mr. Root's price list hung in plain sight on the kitchen wall (a string should always be put in to hang them up by, Mr. Root), anxious to suggest that excellent tin pot-covers of six different sizes could be had for 5 cts. each. Then a woman will have a hard time scraping out her pots and kettle with a knife, when she could do it so much better and easier with a 10-cent dish-cloth of iron rings. There's many a farmer who does not hesitate at all to pay 25 or 50 dollars for some tool for farmwork, who could get along without it and hardly feel the difference, and for half the money get articles from Mr. Root's list that would save his wife hours and hours of time and toil, and make her life ever so much pleasanter. And it's often from sheer ignorance that he doesn't do it—ignorance on the part of both man and wife. Amongst the things she should have is a *good* carpet-sweeper. I got two, and they were successively thrown aside; but the one I got from Mr. Root is regularly used, and esteemed a great help. She should have a good supply of real *sharp* knives for various uses, and they should be kept sharp. Get her a \$3 or \$3.50 grindstone, such as Mr. Root used to keep, and she can do her own sharpening. I don't know why he doesn't keep them now, unless because they are a little difficult to straighten up when they get out of kilter. Possibly the grindstone on the 75-cent counter will answer, but I haven't tried it. She needs a good bread-knife with a rather wide blade. Mr. Root has a good one for 10 cents, if it would only stay in the handle. Then on the 10-cent counter is a butcher-knife she needs. I got one with a blade about $4\frac{1}{2}$ inches long; but the last time he sent me one with a blade 6 inches long. They are both good, but the short one is the favorite, perhaps for old acquaintance' sake.

Looking further down on the 10-cent list is "knife, kitchen, fine steel, with beautifully finished handle." I got one of these, and it fully answered the description, and was so well liked that my wife gave it to a friend and told me to get another. The other came in the last box, but was entirely different. The handle is *not* beautifully finished, and the knife is a most outlandish-looking thing. But, oh how nicely it works! While writing this I stopped and laid down before my wife the eight different kinds of sharp knives we happen to have, and asked her which she valued most. She said it wasn't fair to ask such a question, but she could tell me which two she would rather have. "Well, then," said I, "which two?" Without saying a word, and without a moment's hesitation, she picked up this uncouth-looking thing, and then went to studying which she would take for a longer-bladed knife; so that, after all,

the ill-favored kitchen-knife, I think, is the most treasured, and I wouldn't take 50 cts. for it if I couldn't get another. For paring potatoes and other things, I never saw its equal. If you ever sat and pared apples or other fruit for a long time, you know how black your index finger becomes where it rests on the back of the knife-blade; and, if continued long enough, the finger becomes sore. Well, some genius has gotten up this knife with the handle projecting about three-fourths of an inch more on the back of the blade than it does on the edge, so that the fore-finger rests on the handle instead of the blade. If you don't expect to send for a box of things soon, better send Mr. Root 14 cents and have him send you one of these knives by mail, right away.

For a pocket-knife, my favorite is the Barlow, on the 15-cent counter. I think I have had more than a dozen of these. They are handy to give away, and will take an edge almost like a razor; and if your boy loses one, the loss is not very great.

Instead of having the children buy a leadpencil every little while at the store for 3 or 5 cts., you had better get a dozen from the 10-cent counter, making them cost less than one cent each.

While I am writing this I am wearing a pair of spectacles from the 10-cent counter; and, between you and me, I believe they are just as good as if I had paid \$1.00, \$2.00, or \$10.00 for them. I don't know, but I *think* there is a great deal of nonsense about this matter of spectacles, Scotch pebbles, and all that sort of thing. If the glass is perfectly transparent, and of homogeneous texture, what more can there be, except the shape? I believe there are many people whose eyes are really injured by wearing high-priced glasses, because a pair of glasses that was bought five years ago does not fit the eyes now, but they cost so much that they are endured, to the injury of the eyes, rather than pay so much for a new pair. I haven't any that cost over 25 cts., so I can keep one pair always at my writing-desk, and one in each of my vest-pockets, thus running no risk of being caught every now and then a mile from home with no glasses.

Until Mr. Root gets some better suspenders, don't buy any from him.

The cheapest way to buy needles, and have them good, is to get a package from the 15-cent counter.

If you want an egg-beater, don't get the cheaper ones, but get a Dover, from the 25-cent counter.

Of course, I have mentioned only a few articles, and some unmentioned may have more merit than some I have mentioned; but I thought it would be useful to the readers to say what I have.

Marengo, Ill.

C. C. MILLER.

In regard to freight, friend M., to get the best rates on it the shipments should not weigh less than 200 lbs. Many of our railroad companies have a special lower rate for 200 lbs. or over, although 100 lbs. will go pretty nearly as cheap as 200. The way the basswood nest-eggs got into the glassware, some one thoughtlessly put them with glass nest-eggs, in order to have *nest-eggs* all in one place.—The iron pins at 3 cts. a paper are like the cheap tinware—just as good as any for certain purposes. For instance, we use them here in the office for pinning papers and letters together. You see, our clerks are pretty much all women-folks, and

they take to pins a good deal as ducks do to water. Perhaps it would not be well to have these iron pins taken into a family where they might be used in such a way as to do damage.

We have *also* the best quality of tinware; but as our covered pails are mainly used for honey, to be given away with the honey, they are our great specialty; and by the way, friend M., it makes a great difference who uses the tinware. A few days ago I asked my wife how long a certain utensil had been in use; and although it is a piece of tinware, she said she had used it almost ever since we were first married. I told her I would throw it away and get a new one, simply for looks' sake, if for nothing else. Her invariable habit, however, is to have tinware cleaned and wiped dry, and put up on the shelf every time it is used. We never leave water standing in any tin utensil, unless it is the water-pail, and I believe that is always upside down (taking a rest, as it were) in the night time. Rubbing occasionally a little of some kind of grease that contains no salt, in the joints, or on places most apt to rust, will also aid greatly in making tinware last. Some people, however, say this is too much trouble, and that they would rather have a new one once in a while, and so they get a new wash-basin every summer—a new dipper perhaps oftener, or new water-pails, in the same way.

I am glad that you found out what that uncouth-looking handle was intended for, friend M. In the appendix to the Potato-Book Mr. Terry mentions that their women-folks always get their fingers sore in cutting up potatoes for seed, and directs that you wind a rag around the fore-finger, etc. Now, this knife has the exceedingly thin fine steel blade he advises, and the handle projects up along the blade so as to form an easy natural rest for that same fore-finger. I think we shall have to have a picture of this knife, as it seems to be so exceedingly handy for so many purposes.

In regard to spectacles, I presume you know, friend M., that for a good many years of my life I stood behind the counter and sold spectacles. A good deal of the time my father stood with me, and we examined faithfully and carefully the so-called "pebble-glasses," and compared them with manufactured lenses made of a fine quality of clear flint glass. Both of us soon became satisfied, and the testimony of dozens of customers still further satisfied us, that almost as good glasses could be furnished for a few cents as could be bought of the so-called opticians for a good many dollars; and I have for years advised my friends to use such spectacles as we sell at 25 cts. If they want something that will answer out in the fields, to lay down on the work-bench, or so as to have a pair in each pocket, get three or four pair of the ten-cent ones at the same time. One of the ladies who attends our teachers' meetings owns perhaps half a dozen pair of spectacles. Some of them cost as high as \$2.50 or even \$3.00, but she declares positively that a pair she got of us for ten cents are a good deal better glasses than the highest-priced ones. I presume the

truth is, that some of the ten-cent ones often suit the eyes exactly, by what we might perhaps call accident. The very glasses we sell for 25 cts. are often sold for \$2.00 or more. The jewelers and opticians who do it, justify themselves by saying they can not get along and pay their rent and other expenses unless they have great profits on certain lines of goods. It looks to me, however, as if they might as well say they could not get through this world comfortably by doing as they would be done by.

Friend M., we have not been able to find a manufacturer of suspenders yet who would give us such goods as we want. If there is a manufacturer of this line of goods among the readers of GLEANINGS, we shall be very happy to make his acquaintance.

BUMBLE-BEES.

A FEW MORE FACTS ABOUT THEIR HABITS.

WHEN at home on the farm, a lad of some 15 years, I was made interested in honey-bees by some neighbors cutting down a tree, robbing them of their stores, and leaving the bees, which I secured, yet of no use more than to awaken a more lively interest in bees and their habits, as it was fall, and the queen was killed. The next year father bought me a colony of bees in a movable-comb hive, and from that time on I have ever been a lover of bees. About this time I took a notion to try and get a colony of bumble-bees, so I made a box about six inches square, with bottom board projecting, and a $\frac{3}{4}$ -in. hole for entrance; for a cover, just a piece of board held on by a stone. I do not remember just how I got the first nest into the box, but I did, and every nest that I could rob I added the brood part to it, and let them hatch. They made quite a strong colony. By the way, there are two or three varieties here. One kind is small, with about half of the abdomen a shiny black; another kind with a band of red hairs across the abdomen. This is the kind we boys liked to rob; it is true, they are more vicious; but with that there was more honey. I fancy there is also a large yellow kind, not so good for honey-gathering. My colony consisted of these three varieties working harmoniously together. About July or August I lifted up the lid. The cells were just shining full of honey. Thinks I to myself, there will be a fine treat after awhile. Well, one morning, when I thought the flowers were failing, I lifted the lid again and "peeked in;" and just at that time a bee "peeked out" and flew perpendicularly to the side of my eye. While smarting with pain I was much inclined to give the box a kick and send it across the garden; but I did not, and need not tell you why. Some days afterward, noticing there was not much stir about the hive, I lifted the lid again, and, to my horror, nearly all the bees were gone and all the honey consumed.

I have seen the drones and queens mating quite a few times; also toward fall, on a fine day, I have seen one or two dozen drones flying about where a nest is situated, and young queens, among them. I have also robbed nests when there would be several young queens besides the old one. I have found them in spring with one cell of honey and one containing pollen and an egg in it, together

with just the queen. You can easily distinguish the drones from workers; for while workers are a shiny black at the rear of their abdomen, the drones keep the same color to the end, and are a little more blunt. We used, when boys, to call them "she bees." They may be found on what we call "bull thistles" and other fall flowers, earning their own living by the sweat of their brow.

Minesing, Simeco Co., Can.

THOS. STOKES.

SOME USES FOR HONEY.

FLAVORS TO USE WITH HONEY, ETC.

I WONDER if any of the readers of GLEANINGS have had any thing like the following experience of ours happen to them. Several years ago we sold several barrels of fall honey to a large grocer and dealer in sweets, in a city in the east. One of the barrels was to be used in a bakery. A few days after the honey had reached its destination we received a letter from the wholesale dealer, saying: "I do not know what to do with the barrel of honey which I delivered to the baker; he says he spoiled a batch of cakes by using it. I have tasted the cakes; they have an unpleasant flavor."

We knew that the quality of the honey was unquestionably good, so when my husband read that letter to me we looked at each other in surprise. The honey that we used for the cookies, "snaps," and honey-cakes that were daily on our table was of the very same quality as that which was in the aforesaid barrel; and not only did we prefer the strong-flavored honey to spring honey for baking purposes, but many who had tasted these cookies, etc., at our home had seemed to relish them.

After thinking the matter over a few minutes I realized what the trouble was: The baker had probably tried to make *gingerbread* with this fall honey. I had once tried to use ginger to flavor cakes and cookies made with fall honey, and the result had been a decided failure—the two flavors combined giving a coarse, bitter, almost nauseous taste. I have used ginger with honeys of milder flavor; and though the result is not perfection, the taste is not really bad.

A number of different flavors can be used with honey; among them are cinnamon, nutmeg, grated orange-peel, etc. But by far the best flavor is obtained by the use of the four spices—*anise-seed*, *coriander-seed*, *cinnamon*, and *nutmeg*. So far as I have experimented, I have found the following to be the best recipe for

HONEY SPICE-BREAD.

Dissolve a teaspoonful of soda into $1\frac{1}{2}$ cups of sweet milk at least 3 hours before you are ready to mix the cake (soaking the soda the day before is still more preferable). Have ready 3 cupfuls of honey, 4 eggs, $\frac{1}{2}$ cupful of butter, and one tablespoonful each of ground *anise-seed* and *coriander-seed*, one scant teaspoonful of ground *cinnamon*, and $\frac{1}{2}$ *nutmeg*, grated. Melt the honey, if candied, but use it cold, or only lukewarm; mix it with the butter and the spices thoroughly; add flour enough to make a stiff batter; next add the yolks of the eggs and the milk, mix and beat well, then add the whites beaten stiff. Bake in square tins in a gentle oven. If the dough lays in the pans over an inch and a half in thickness, allow it to bake 45 minutes to one hour. One-half hour is enough if

the cakes are not thick. When poured in the pans the batter should be of such consistency as to spread evenly in the pans though not too readily.

SOFT HONEY-COOKIES.

Mix together 3 cupfuls of liquid honey, 5 eggs, a scant cupful of lard or butter, and a heaping teaspoon of soda; add the four spices mentioned above, and mix with enough flour to make a stiff dough; roll out *thick*, cut in any shape, and bake in a quick oven to a light brown.

CRISP "HONEY-SNAPS."

To two cupfuls of honey add one or two eggs, half a cup of butter, half a teaspoonful of soda, spices as in the above mixtures; make a dough just stiff enough to roll (if you let it stand in a cold place after mixing it soft, it will get stiffer without using more flour). Roll it out thin, cut in any shape, and bake in a slow oven until quite brown.

The soft cookies will get too soft unless kept in a dry place, but the "snaps" will remain crisp quite a while, and keep fresh for a long time.

Cinnamon, *anise-seed*, and a small proportion of cloves, may be used as a substitute for the four spices mentioned above, though they are by no means a perfect substitute. In the above recipes the strongest-flavored honey will give the best results.

Any cake or cookies made with honey is far more digestible than compounds of sugar, eggs, and flour. Ginger, as every one knows, is a tonic of a very irritating nature, while *anise-seed* (or the essence obtained from *anise*) is one of the few flavors which can be used by dyspeptics with actual benefit. Every mother who has used Mrs. Winslow's soothing syrup knows it owes its soothing qualities chiefly to the essence of *anise-seed*.

Coriander grows wherever carrots grow, so we bee-keepers can not only produce our own sweets, but that with which to flavor them.

I intended to say much more about honey and its uses, but my article is already too long. I may come again, and show the advantages of using honey in making jams, and give two or three more recipes.

MRS. E. J. BAXTER.

Nauvoo, Ill., March, 1887.

A REMEDY FOR THE MUCH-DREADED GREEN FLY OF THE LETTUCE-GROWERS.

A KIND OF FOUL BROOD THAT BRINGS RELIEF INSTEAD OF DISASTER.

MR. ROOT:—I am just home after a week's absence, and find the green aphides of the lettuce, which you send, all dried up. Yet I assure you they are very interesting to me, for I can still see the fungoid threads which would surely soon bind them in death's chains if they had not already done so. While we are very loth to have the fungus of "foul brood" carry off our bees, we are more than willing to have it claim as victims our injurious insects. As I told you at Ypsilanti, the cabbage-caterpillar fungus is destroying the destructive pest of our cabbages in a way to make every cabbage-grower glad. That fungus is much like the one that kills our bees; while the one you send that is ensnaring the aphids is like that which is often seen enshrouding our common house-flies in autumn. Nearly all the readers of GLEANINGS

have doubtless observed the white mold, or fungus, on house-flies in autumn, and have seen the flies succumb to its embrace. A close examination of the carcass of the fly shows that the mycelium, or threads, of the fungus, have passed all through the victim's body. These aphides which you sent seem to be attacked by a similar fungoid parasite. It is a very interesting fact, and may be possessed of no small practical importance. If a few of these hairy lice could be carried in a letter, say to some other greenhouse, and there set free, very likely they would fasten their deadly grasp upon other of these aphides, and thus one of the worst pests of the greenhouse would be stamped out. Entomologists have done many valuable services by importing parasitic insects, and scattering them, that they might perform their goodly mission in other and often widely distant districts, and have thus fought insects which could be overcome in no other way. It looks as if we might have another equally potent weapon in these vegetable parasites. These fungi on plant-lice are new to me, and I would take it as a favor if you would send me some fresh ones, when I will see what I can do by way of cultivating them here.

It now looks as if these fungoid organisms, the source of death in plants and animals alike, were soon to be thoroughly understood through the researches of scientists. Then we shall be able to escape harm from disease which they engender, and also to make them our servants in slaying our enemies.

A. J. COOK.

Agricultural College, Mich., Feb. 21, 1887.

In answer to the above, I would say that we have, during the last part of the winter, been watching curiously the green flies in one of the upper beds in our greenhouse. When half grown or fully grown, their bright green changed to a reddish pink, and finally the insect gave place to a spot on the leaf, something like a minute drop of reddish paint. The disease has now extended to the green flies in other parts of the greenhouse; and the prospect is, that it will increase so as to destroy the whole of them, without the aid of tobacco-stems, small chickens, or any thing of that sort. If other lettuce-growers have noticed a similar phenomenon, we should be glad to hear from them.

HANDLING BEES IN EARLY SPRING.

H. R. BOARDMAN ON THE QUESTION OF WINTERING.

I HAVE just been reading *Our Own Apiary* in last issue of *GLEANINGS* (Mar. 1), and I was a little astonished that you did not take out the frames and make a careful examination to ascertain the exact condition of some of your colonies. To be sure, winter is a poor time to be tinkering with bees; but we have had quite a number of warm days when bees could be handled in the sun without any possible danger of doing them the least bit of harm; and we are all a little interested in knowing the condition of the bees at the Home of the Honey-Bees, at the very earliest opportunity. I am very certain that you would have found brood in nearly every colony some time ago if you had looked. I am quite particular in these matters, and will not be satisfied with guessing; and of those wintered inside I set out a few colonies

on occasional warm days for examination, that I may know just what is being done.

I am wintering 30 colonies on their summer stands, scattered about at four different apiaries, for the purpose more especially of perfecting some experiments in downward ventilation in outdoor wintering. Here at the home apiary I have eight of these colonies. On turning to my journal I find this entry:

Jan. 29.—Warm and pleasant. Bees outside flew nearly all day. I have examined four of the eight colonies on summer stands here at the home apiary, and found sealed brood in all of them, with more or less larvæ and eggs surrounding it. The extent of brood-rearing is astonishing for the time of year. The patches of sealed brood are four to six inches in extent. I set but two colonies from the bee-house for examination, and found no signs of brood or eggs. And again:

Feb. 10.—Temperature 56°. I opened one of the hives examined on Jan. 29th, and found a large amount of brood, still more than there was when examined before about two weeks ago, the frames being nearly full, with eggs and larvæ surrounding the sealed brood, and also in the center, where the brood is beginning to hatch. And again:

Mar. 1.—Temperature 45°. I examined a colony on summer stand, and found an abundance of brood with eggs and larvæ, and some old pollen in the combs. This colony has already bred up quite strong, and has more bees now than at the commencement of winter. I had expected to find some damage done the brood by the severe cold of the last few days past, but did not even see any brood thrown out by the bees.

I might say that these colonies were of average strength; had a fair exposure to all of the trying weather of the past winter, with no protection whatever, with only a $\frac{1}{4}$ -inch board between them and outdoors. They have been in good condition at all times during the winter. Now, I would suggest that we jot this item down on the tablet of our memories.

Bees wintered on their summer stands do sometimes begin brood-rearing earlier than those wintered in cellars or bee-repositories.

The downward ventilation may have had something to do with the early breeding, but I attribute it more to the warm spells of weather.

My bees "inside" are wintering in fine condition, and have, at this date, commenced breeding quite extensively.

H. R. BOARDMAN.

East Townsend, Huron Co., O., Mar. 4, 1887.

Friend B., I am well aware that bees many times do well when handled in the middle of winter; and I am inclined to think that, if handled only when they can fly, little if any injury would be done. I have several times, however, known bees started to flying by this kind of handling, where others that were not handled did not fly at all—or none of any consequence. I have also known the weather to turn around suddenly in the winter, and even before the disturbed colony had got settled. Under such circumstances a great many bees would be lost, and the colony seriously injured. An old experienced hand might safely go through his bees in January, if he thought fit to do so. I believe that handling in winter, as a general thing, seems to start brood-rearing. I have

rarely found brood chilled by being handled in cold weather, unless the frames were carelessly put in different places, so that the cluster would be unable to cover the brood that had by this means been pushed out of the cluster. We did make a thorough examination March 10th, and found brood in perhaps one-third of the whole number of colonies; and, by the way, I believe I would rather that bees should not commence brood-rearing very much, before the middle of March or toward the first of April. This matter has been much discussed, I presume you remember, in our back volumes.

DRONE COMB.

FOUNDATION, EMPTY FRAMES, ETC.

I THINK Mr. Dadant is entirely correct in his views about the building of drone comb; i. e., if the brood-nest is so large that the bees in the first-built cells hatch before the brood-nest is filled with comb, and the queen returns to the center to refill the cells with eggs, then the comb that is built will, quite likely, be drone comb, *because the bees are building it for storing surplus*. You will see that I have no trouble from this source, because I contract the brood-nest to such an extent that it is filled before the bees in the first-built cells hatch, hence the queen is always close upon the heels of the comb-builders. If the honey-flow should suddenly cease before the brood-nest is filled with comb, and comb-building should be stopped as the result, until bees were hatching in the central combs, and the comb-building should be resumed at exactly this time, it is quite likely that drone comb would be the result.

You say, friend Root, that you are loth to give up the axiom that "empty combs are the sheet-anchor of bee-keeping." I do not ask you to give it up; only not to use them in the brood-nest when *hiving swarms*. This question of when, where, and how, to use empty combs; when fdn. is preferable to combs; and when it is better to allow the bees to build comb than to use either, is one I have tried to make as clear as possible in the little book that I have written the past winter. The book is now in press, and will soon be out.

Friend Root, I am just a little puzzled by your remarks on page 174, about 8 and 10 frame hives. Heretofore you have approved of 10-frame hives; and your remarks on page 174 are, *apparently*, in their defense; yet you close by saying, that so far as the amount of bees is concerned you don't see that there is much difference. If we can raise as many bees in an eight-frame hive as in a larger one, why not give it the preference, and thus save the expense of the extra combs? W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., March 9, 1887.

I will try to make my meaning clear, friend H. Early in the season, before the colony has increased or enlarged sufficiently to have any use for more than 8 combs, the bees and brood in an eight-frame hive are worth just as much as the bees and brood from a ten-frame hive; in other words, for quite a spell in the spring of the year we find most colonies with two or more unoccupied combs that do the bees no good whatever, and I prefer the ten-comb hive, because, when the time comes that the 10 combs are

needed, there they are, right at hand. If they contain sealed stores, they are also right at hand for the bees when they want them. Were I purchasing bees and brood, however, as we do purchase almost every spring from our neighbor Rice and others, I would just as soon have the bees and brood from an eight-frame hive as from a ten-frame hive. In buying bees, we stipulate to get combs enough with them so as to take all the brood and pollen and no more, for we do not want to purchase any more extra combs than are absolutely necessary, preferring to have bees build them in wired frames, for our special use. I think that, when neighbor Rice brings us bees the first of May, it requires only from five to eight combs to contain all the brood and pollen in a good colony.

THE T SUPER—THE BEST ARRANGEMENT.

HONEY, HIGH AND LOW PRICE OF.

I AM glad to see in GLEANINGS, p. 156, that you are giving the public a good description of the T super, for it is by far the best arrangement yet made for holding sections. The first one I ever saw was made by my brother, and used in our apiary in Front Royal, Va., in the spring of 1883. Since that time we have made hundreds of them for the eight and ten frame L. hive, also for chaff hives. It works nicely with or without separators. But we always use them with, as we like to have our sections of uniform weight, and built so they can be crated without damage to combs. For the eight-frame L. hive we make the cases 12½ inches wide, inside measure, and run the tins the long way of the case, thereby putting in three rows of sections, the sections running crosswise of the brood-frames. We are convinced that the bees do not fasten bits of comb to them nearly as much as when they run the same way as the brood-frames. By using the T-tin bearings for sections they are brought down to a bee-space from the frames, and the cases are more easily cleaned of propolis than any other we have tried. We use a follower at the back end of the case, to hold the sections and separators snug, either with a wedge or thumb-screws. As we use nothing but 4¼x4¼ sections, we have the T tins fastened at fixed distances in the case, so that they are always in the right place. The case can be made so as to have a bee-space over the sections or not, as desired. We use them without, and slide the cases on from the side of the hive when tiering up.

HONEY A STAPLE ARTICLE OF FOOD.

I shall have to side with Mr. Dadant as regards the prospect of honey competing with sugar and syrup. I am convinced that, when honey is placed in the hands of the consumer, at a fair price as compared with the wholesale prices now obtained for it, there will be large quantities of it used, where now it is hardly known. While stopping in New York and Philadelphia on my trip to my old home here in New Hampshire, I saw tons of comb honey in the hands of commission men, that could be purchased all the way from 9 to 12 cts. per pound. The same honey in the retailers' hands was being offered at 20 cts. A large part of this honey was dark, and of light weight, so the consumer had to pay

25 cts. for what he ought to have for 15 cts. This, I believe, is the principal reason why more people "do not like honey." I have never yet seen the person who preferred cane syrup, or the other manufactured syrups, to nice honey, when it could be had at a fair price; and, in fact, nine out of ten persons in our community tell me they care but little for any other sweet.

The only way I see for the bee-keepers to increase the sale and consumption of honey, and at a price which will pay them for their labor and capital involved, is to place the honey in the consumers' hands, in good shape (which can not be done after it has been through the hands of two or more middlemen), and at a price which a laboring man can pay. When this is done, honey will not be a drug on the market, as it is now becoming. We must all work hard to create a local demand instead of holding conventions to keep prices up.

Oxford, N. H., Feb. 28, 1887.

H. W. BASS.

DRONE COMB, AGAIN.

DOOLITTLE CONSIDERS DADANT'S THEORY.

IT was with great interest that I read Chas. Dadant's article on drone comb, in *GLEANINGS* for Feb. 15; and I wish to say that I consider that what he calls his "theory" is mainly a fact. The only thing I can not fully indorse is the idea that the queen has control of the matter of comb-building. This I doubt; but as the facts regarding the building of both drone and worker comb remain exactly the same as Bro. D. gives them, I do not know that it makes any particular difference which it is, bees or queen, that controls the matter. As bearing directly on this subject I wish to give a few more points not touched upon by friend D., or only partially explained by him.

In preparing for swarming, the old queen begins to cease her prolificness some three days before the swarm issues, so that, during the last 24 hours, only a few hundred eggs are laid, as nature has provided that the queen should not be cumbered with eggs to such an extent that she can not fly when the time for swarming comes. There is also another reason for her doing so, which bears more directly on the comb question, which is, that, when the swarm finds a natural home, there is no comb in it, hence no place for eggs, even if the queen could lay the 3500 eggs D. speaks of her laying the first 24 hours. As a rule, it takes 8 hours after a swarm is put in an empty hive before there is a cell formed deep enough to have an egg placed in it, while with an ordinary swarm, comb-building does not become extensive during the first 24 hours. By this time the queen is ready for her part of the work, after which we find it is just as friend D. states. Now, any thing which keeps the queen from following the bees right up with eggs as fast as the comb is built, tends toward drone comb; hence the putting of one empty comb in the brood-chamber, as I saw recommended by a writer in one of our bee-papers lately, is just the thing to fill the hive to a large extent with drone comb, as years of former experience proved to me when I thoroughly went over all of the ground. It would take the queen so long to fill this comb with eggs that the bees would get the start of her; and no worse advice could be put in print than this writer gave.

Again, the giving of a frame of brood to prevent

decamping is subject to the same objection, providing there are empty cells in it, or nearly mature bees, which will hatch to any extent so as to cause the queen to leave off following the bees. Again, a very large swarm, as where two or more swarms are hived together, is sure to build quite a share of their comb of the drone or store size, for the reason that they build comb faster than the queen can occupy it with eggs. Now for the reason why the plan as recommended by Bro. Hutchinson has a tendency toward the building of only worker comb in the brood-chamber: There is little room for comb below, and lots of room above, while the room above is made enticing for the bees to build comb there first, as in the surplus-apartment a start has already been made, so as the most of the comb is built there for the first 24 hours. They now begin below; and as the queen is now ready for business she keeps up with the comb-building here while that which would tend to exceed her prolificness is built in the sections. Now, if for any reason the bees fail to enter the sections and thereby all crowd into the small hive below, thus building comb very fast here, so as to get the start of the queen, the small size of the brood-chamber or the presence of surplus room on top has no effect whatever; and I here state as my belief, that something of the kind has been the trouble when success has not been attained. In other words, having too full sections, so that not enough room for the surplus of bees was given; too much room, so the bees were loth to enter the surplus-arrangement; or an unprolific queen, has been the cause of the failure, for I have used it successfully for 14 years, and was the first to describe it in connection with securing all worker comb.

One other item: After 21 days have elapsed from the time of hiving a swarm, if any more room is added to the brood-chamber it must be given in the shape of empty comb or comb foundation, for drone comb is sure to result, as the instinct of the queen takes her back over the former ground, rather than to lay in newly built cells. From the above the reader will see how my fourteen years of experience agrees with friend Dadant's article. However, I find, contrary to what I read, that nearly all of my prime swarms having a queen a year or more old will rear a few drones within six weeks from the time of hiving, so I consider the idea fallacious, that new swarms do not build drone comb for the purpose of rearing drones. With me there are always a few square inches built for this purpose, no matter how well suited to the building of worker comb my plans are. Then, too, my earlier swarms often swarm again, in which case they will have drones, even if they have to tear down worker comb so they can build drone. Hoping the above may throw some light on what the editor calls "deep water," is my excuse for this article.

Borodino, N. Y., March, 1887. G. M. DOOLITTLE.

Friend D., you have no doubt thrown some light on this matter that I have called "deep water," and I see now how it is that the position that you have held so long and tenaciously is going to agree pretty well with friend Hutchinson's new developments. The new developments slip over on to ground we have already traveled, although many of us did not see it until you pointed it out, only you did not recommend, or, at least, I do not remember that you recom-

mended, placing sections ready furnished, right over the brood-frames, where the bees were to build their own comb. You did, however, strongly insist that the bees could be made to build their own combs, and have them all nice straight worker combs at the same time.

CIDER, AND ITS EFFECT ON BEES.

HOW TO TAKE DOWN A SWARM 30 FEET FROM THE GROUND.

IN this locality cider is always made after the frosts have destroyed fall flowers. If the bees fly at this time they are sure to get more or less of it. If they get just enough to keep the queen laying, and yet no more than will be used up in brood-rearing, then it may be a benefit. You know we Canucks are great on young bees for winter. During the fall of 1884, also in the fall of '85, my bees gathered just enough to produce that effect. A very cold winter followed the fall of each year, accompanied by no serious results to the bees. But this fall the weather was fine during cider time, and they gathered a good deal more than they used before winter. After a confinement of 90 days they had a flight—Jan. 22d and 23d—hardly warm enough for a good flight, but each colony flew some, and all showed more or less signs of dysentery; some were badly affected. There is very little honey-dew in this locality; and that the cider was the cause of the diarrhea I have not the slightest doubt. In fact, I do not think we need doubt any more about it. Any cider left in the combs after winter has set in is a very undesirable addition to their stores; and to make a clean sweep, keep the cider away from them altogether if possible.

CONVENIENCES FOR THE APIARY.

The solar wax-extractor I have found a great help in getting nice wax. There is nothing I have ever tried that pleases me better. It is certainly less bother, and a great improvement on the Swiss extractor. Mine is so nearly like one described in GLEANINGS last summer that I shall not attempt a description.

TAKING DOWN SWARMS THAT CLUSTER HIGH.

For this purpose I have found the Shepherd hiving-box too cumbersome and heavy. The hoop-and-bag arrangement described in the A B C is not open to this objection, but it is liable to get torn when placed among the limbs. Allow me to describe a contrivance of my own, a trial of which I think will please the readers of GLEANINGS. Take a common stout cane fish-pole; saw off the end about 10 feet from the large end, and four or five inches from one of the joints. Now fit a piece of hard wood in the small hollow end; have it long enough to reach the joint, and saw it off even with the end of the pole. About two inches from the top, bore a small hole through the side of the pole into the plug. Now get a common wire hook, screw it into the hole, clear through the pole. Next hunt up those fruit-baskets that you bought fruit in last fall, and have no other use for (if you don't happen to have them, you can buy them for seven cents each); select a good strong one. You will notice that it is just about the right size and shape you want—about 14 inches across the circular top, 7 inches across the bottom, and 12 inches high. The spaces between the splints will be about $\frac{3}{4}$ inch. If you think that too much, you can stick a half-inch

splint between the interstices, and fasten with a half-inch wire nail. Now tie a stout cord across the top of the basket; take your pole in one hand, and with the hook pick up your basket. Can you imagine any thing lighter or nicer? In fact, the whole affair is strong enough and yet very light. If the cane is not obtainable, ash or hickory makes a good substitute, but not quite so light. You may need another pole with a hook on it to shake the limb with. If your apiary is large, one pole will answer for a number of baskets; and with a little practice you can pick them up on the run. If another swarm comes out while you are shaking one in a basket, just snap a cloth cover over the top; set them in the shade, and then hive them at your leisure.

Now let me tell you how this arrangement saved me a fine colony of bees last summer. A large swarm clustered on a tall maple near my apiary. They were about thirty feet from the ground, and at the extreme end of a limb about 15 feet from the body of the tree. I had just about given them up when I thought, "Here is a good chance to see what I can do with my pole and basket." After placing a ladder against the tree I saw that I still had considerable climbing to do; but "my blood was up," and I was bound to have that swarm. I soon found that I could reach the swarm, but was obliged to hold my hiving-basket and pole nearly at arms' length, almost horizontal, which I could not have done, especially when the swarm dropped, had the pole or basket been heavier. Well, I got the bees in all right, pulled in the pole, detached it from the basket, caught hold of the cord with one hand (the limbs were in easy stepping distance), and I soon reached the ladder. Now, thought I, I will hook the basket on and let it down to Mrs. D., who stood at the bottom of the ladder. I had just started to lower it when off it slipped from the hook and down came the basket, right side up, however. The bees sat down in the bottom, but we got them in the hive. Had it not been for my light hiving-basket, I should have been obliged to make the return of the Southern sheriff—*Non come atibus in swampo.*

Ridgway, Ont., Can.

J. F. DUNN.

BEE-STING POISONING.

A SIMPLE REMEDY IN SEVERE CASES.

IN GLEANINGS of Feb. 15, 1887, Mr. Ellison, of South Carolina, after speaking of the serious effects of bee-sting poison upon two members of his family, says: "It would be a great boon if some of our bee-keeping fraternity who belong to the medical profession would study a remedy for cases of this kind, and give it to us."

While I do not belong to the medical profession, I think I can give him a remedy for the constitutional effects of bee-poison—a remedy that can have no bad effect, that is always at hand in every home, that is prompt in its effects, and one that I believe will not fail to cure if quickly applied. I will give a case in point.

On a hot day in summer, some fifteen years ago, my eldest son, then about two years old, was stung by a bee on the back of his head. By the time he was taken into the house, probably two minutes, his face was considerably swollen. He grew rapidly worse, so that in a few minutes he was much swollen; his face was a livid or purplish hue, his

utterance became difficult, and he seemed to be losing consciousness. My first thought was to go to town, three miles away, for the doctor; but my wife said that it would be of no use, for what was done for our child would have to be done before a doctor could be called. At about this point I remember that I had read in the old *A. B. J.* that a "wet-sheet pack" was a cure for bee-poisoning. Our child was soon stripped of his clothing and quickly wrapped in a cloth from which the water had been wrung, just enough to prevent dripping. Outside the wet sheet he was snugly wrapped in dry blankets. He had been in the pack but a few minutes before the natural color began to return to his face, and the swelling to disappear, and in fifteen or twenty minutes the symptoms of poisoning had all, or nearly all, disappeared, and he was taken out cured.

Several years ago Mrs. Hayhurst, of Kansas City, gave in *GLEANINGS* an account of a similar case and cure that occurred in her family. Our daughter, when small, suffered from a severe scarlet rash after being stung, like that described by Mr. Ellison. It was quickly relieved by an application of the wet-sheet pack. I think she was thus treated for this rash three or four times. Both of these children gradually outgrew their susceptibility to bee-poison, and now make little account of bee-stings.

Dr. Trall, in his "Hydropathic Encyclopedia," recommends the wet-sheet pack in the treatment of poisoning from snake-bites, as well as from bee-stings, and I see no reason why it should not be as efficacious in the former as in the latter case. This treatment for snake-poisoning has some advantages over whisky, in that it is safer and more immediately available in the houses of most bee-keepers.

For the benefit of those who may not be acquainted with hydropathic appliances, perhaps I ought to tell how to put a person into a pack. Two or three quilts or blankets are first spread on a bed. Upon these a wet sheet is spread—as wet as may be without dripping. The patient lies on his back on the middle of the bed, with his head projecting above the sheet, and his arms raised. The attendant quickly draws one side of the sheet over the patient, drawing it tight and tucking it under, so that the sheet fits snugly. The arms are then dropped by his side, and the other half of the sheet is thrown over and drawn tightly and tucked under, care being taken to get a good fit about the neck and shoulders. The same process of covering and tucking up is repeated with the blankets until the patient has sufficient covering to keep him warm. Much sweating is not desirable, and twenty or thirty minutes is as long as one should remain in the pack. T. P. ANDREWS.

Farina, Ill., Feb. 22, 1887.

Friend Andrews, I can heartily indorse such remedies as you mention for bee-stings. Cold water will go very well with pure air and sunshine as a remedial agent. Another thing, it is not guesswork. Whenever any part of the body is inflamed and feverish, relief comes by cooling the inflamed part with wet cloths, and I do not know that any bad results ever follow. I have, however, many times tried immersing my hand in a pail of water after I had been stung, to see if it would allay the pain, and I have in-

variably noticed that it had no effect whatever. If, however, my hand should be swollen or feverish, from the effects of a sting, or several stings, then the bucket of water gives relief, and I am satisfied it assists without question, to bring about a speedy recovery. Indeed, where a patient is in danger of dying from suffocation on account of bee-stings, a wet pack might be the means of saving a life.

ALSIKE CLOVER.

HOW TO GROW IT WITH SUCCESS.

ANY land that will produce red clover will answer for alsike, or Swedish clover; and any one can grow alsike with success by simply mixing it with red clover and timothy, or orchard grass. The chief object in mixing the alsike with red clover is for the shade furnished by the latter in dry seasons. The main use of timothy, or orchard grass, is to hold the alsike up or away from the ground. The mixing of alsike with red clover is the secret of success in dry seasons, and on dry soils. In wet seasons, and on moist soils where the common red clover does not do well, the alsike will make a fine growth by itself; but even then it is better to mix it with timothy or red clover, or both. Some prefer orchard grass to timothy, as they claim it makes earlier hay and pasture, and of better quality. Orchard grass makes a rapid growth after cutting, and is as good as timothy for holding the alsike up. I hope those who intend to seed with alsike this spring will try some orchard grass in place of timothy, and report the result.

It is not generally known, that alsike can be grown with the best of success on land already seeded down to red clover or timothy, or both. By scattering the alsike early in the spring over pastures and meadows, the seed will catch and do well. Rye and wheat lands are perhaps the best to seed down, but I have had a good "catch" with oats and barley. July, August, and September are good months for seeding pastures and meadows with alsike. The summer and autumn rains will give the alsike sufficient growth to stand the winter and the freezings and thawings of the following spring.

When grown by itself, 4 lbs. of alsike is plenty for an acre; and when mixed with red clover or timothy, or both, 2 lbs. will be about right. The seed is as small as that of white clover; and as each seed that grows makes a large stool, a small amount is ample for an acre. It is safe enough to say, that one bushel of alsike will seed down as many acres as three bushels of the common red. This being the case, a bushel of alsike would be as cheap and as economical at \$15.00 as the common red at \$5.00. But as choice alsike seed can now be had at about \$7.00 per bushel, the reader must see that it is far cheaper than any other clover-seed at the present time.

The best time to cut alsike for hay is when it is in full bloom—say the latter part of June or early in July; but if wanted for honey and seed, the latter part of July in the Northern States will be about right. When mixed with timothy, more or less of the latter will be ripe also; but this does no harm, as the two should be mixed any way for general

purposes. But by cutting the alsike a trifle early the timothy will not be ripe enough to do much harm; and what little seed there may be then can be separated from the clover by a strong blast of the fanning-mill. Alsike may be cut for hay early in June, and before it comes into blossom. Of course, the hay will not be so good as when in full bloom; but by this means another crop can be secured, and the later bloom will come at a time perhaps when there is a gap in the honey-flow.

All things considered, I look upon alsike as the best plant yet discovered for bee-keepers to advocate, it being worthy of general cultivation for hay, pasture, and honey. M. M. BALDRIDGE:
St. Charles, Ill., Mar. 7, 1887.

A FEW SUGGESTIONS FROM AN A B C SCHOLAR.

LIMA BEANVINES FOR SHADE; HIVES AS HENS'-NESTS.

EDITOR GLEANINGS:—It is needless to tell you that I am a beginner in apiculture—my veridancy will show that. Nor is it necessary to tell you I am but eighteen years old; but I will, and I hope the older members of the bee-keeping fraternity will not consider me presumptuous in offering a few suggestions, for age has not made me cautious, nor adversity wise. The suggestions are ventured with a view to help my brother A B C's, and, also, to find out, by your timely advice, as to whether I am on the right track or not.

I started in 1884 with one colony of hybrids in an American hive, and, after many of the trials incident to novices, have now but seven colonies, three of which are mine and the other four I procured from a neighbor, Dr. C.—, on these terms, first resolving (as per your advice in A B C book) to remain good friends, even if I have to sacrifice the bees, etc. The terms are: The four colonies—two in Simplicity and two in American hives—are mine until the doctor calls for them, which he can not do for at least two years. During this time, or as long as I keep the bees, I am to have all the increase and honey, with the exception of 50 per cent of the surplus honey, which he is to get, as it were, for the rent of the bees. He is not likely to ever want the four colonies back again, as his profession engages his entire attention. Are these terms, in your opinion, mutually beneficial, if the present proves to be a good honey year? I am satisfied with them.

RECORD OF APIARY.

I have kept an "Apiarian Record and Account" ever since my advent in the bee-business. In this blank-book I record every noteworthy event or transaction occurring in or pertaining to my apiary. I also keep a "poultry record"—in fact, a record of every thing I do, for my own benefit. By having every queer streak or strange phenomenon occurring among my bees in black and white thus, I am not compelled to trust to memory—which is often treacherous—in regard to these things in future.

QUICK AND SURE SHADE FOR HIVES.

My small apiary is called the "Model Apiary," and it has been, and in future shall be, my endeavor to make it a model one in every way possible. I am now shading my hives with grapevines, etc., as per directions under "Apiary," in the A B C. Now, while I am waiting for the small grapevines to

grow sufficiently to shade the hives, at each post of the trellis I am planting Lima beans. About one month from now I shall plant more beans, which can be bearing after the first are dead. It seems to me that these vines at each hive will not only give a good shade—which shade, by attention, will not prevent the grapevines from growing—but they should yield enough beans to give us a home supply, and also to feed our chickens with, in accordance with your suggestion (a good one, I think) in GLEANINGS Feb. 15, 1886, page 155. This suggestion is merely given for experiment; and would it not be a good idea for several of the A B C class to try a few beanvines for shade, and report? I shall.

WHAT I DO WITH OLD HIVES.

I make hens'-nests in odd out-of-the-way places, with old American hives, because I have no other use for such hives, and, by taking out the glass under the door and leaving the door open, they make excellent nests. My hens seem to prefer them to improved nests. Sometimes I utilize Simplicities not in use, for the same purpose.

DRONE-TRAPS.

I see young chickens are mentioned frequently in GLEANINGS as drone-catchers. Last year I disposed of all my surplus drones in this way. The young chicks (several months old) never, to my knowledge, caught a worker-bee. I taught them to catch drones by feeding them a few near the hives, and then driving them up to the entrance, where they picked up nearly every drone that tried to get in.

HOW TO CARRY SIMPLICITY HIVES BY HAND SOME DISTANCE.

When necessary to remove a colony, in Simplicity hive, by hand some distance, it is tiresome, and a wagon jolts the bees too much to suit me. I nail a handle five feet long to each side of a Simplicity bottom-board, thus making a platform on which two persons can carry a colony without jolting. Put a sheet on the platform, place your hive on the sheet, double the sheet over the top of the hive, and you have your bees tight. If the colony is heavy, shoulder-straps may be put to the handles.

A WINDBREAK ON THE WINDY SIDE.

I have to-day planted sixty raspberry-plants in two rows, at a distance of two feet in the row, and rows two feet apart, on the northern, or windy side, of my apiary plot. The raspberries can be trained on suitable frames, and, besides the honey they give, may serve as a windbreak. The vines may also be converted into a fence to turn stock. I shall plant several hundred more near my apiary this spring. I have also planted 50 Concord grapevines.

I, for one, should like to hear more from the bee-keepers of this State in the columns of GLEANINGS, and I presume I shall, now that we have an Alabama Bee-Keepers' Association, with Mr. S. G. Wood, of Birmingham, as president, and Mr. J. M. Jenkins, of Wetumpka, secretary and treasurer.

Ashville, Ala., Feb. 24, 1887. WM. H. CATHER.

Friend C., Lima beans have been suggested already, and I believe used considerably, for shading bee-hives. They do not, however, branch out like the grapevine, so as to give just the shape of foliage we want. A sort of trellis, spread out a little fan-shaped at the top, might, however, make them do nicely. If the ground is made rich, the beans would pay well aside from their office of shading hives; but the tramping around them might not be so good for them, and of

course they would have to be hoed by hand, for we could not cultivate them among the hives. With your small apiary, however, that part could be got along with easily.— We have heard about your bee-keepers' association before. I think you have got a good start.

MAKING HONEY VINEGAR.

CAN IT BE MADE TO COMPETE IN PRICE WITH GLUCOSE VINEGAR?

ABOUT September last I received a gift from friend C. F. Muth, of a large jar of his honey vinegar. It was very fine, and I put it on exhibition at the State Fair here, where many tasted it, and would have purchased if I had had a supply. Some years ago, when I was engaged in the manufacture and sale of glucose, I sold tons of it to the vinegar-manufacturers; and from intercourse with them, as also from the study of books treating on vinegar-making, I became pretty well posted in the practical working of a vinegar-factory. At that time it suggested itself to me to use honey; but a glance at the value of honey versus glucose soon showed the folly of that thought, for I could sell highly converted grape sugar at 2½ cts. per lb., delivered, and honey was away up far beyond that. I lately began to think there was something in honey for vinegar, if it kept on going down in value, so I decided to look it up; and friend France's statement, on page 64, GLEANINGS for Jan. 15, gave me a basis of value. He says it takes two lbs. of honey to make one gallon of vinegar.

I called upon one of my old vinegar-making friends, and asked him to buy some honey. After quoting him prices that friend France would not like to deliver at, he chuckled and rather laughed.

"Ab, Todd, things have rather changed since you sold me glucose," said he. He then explained to me what I already knew, that by using corn, and mashing it with hot water in a peculiarly scientific manner, he gets, for less money, the equivalent of the pound of glucose that he used to pay 2½ cts. for.

"Why," said he, "I can buy raw cane sugar at 4 to 5 cts. per lb., and even that is not as cheap as making from corn."

In a short time I found that the cost of the raw material required to produce one gallon of vinegar from corn was 3 cts.; and from cane sugar nearly 5 cts. Now, taking honey at 3 cts., and say that 2 lbs. are required to make one gallon, that is 6 cts. as against cane sugar 5 cts., and corn 3 cts. Taking the percentage of water, waxy matter, etc., in honey into account, which reduce its effective saccharine value to not more than 85 to 88 per cent, I came to the conclusion that, to sell honey to vinegar-manufacturers, it will have to be offered to them at 1½ cts. per lb. Now, who will be first to ship me a carload to dispose of to vinegar-makers? My friend tested Mr. Muth's honey vinegar, and said it stood "27, soda test."

"At what price can you supply me a quantity of vinegar of that strength?" I asked.

"Six cents per gallon," was the reply.

Thanking my friend, I declined to sell him any honey just that day, and decided to give your readers the benefit of getting down to actual facts.

Although 1½ cts. per lb. may be the value to a regular vinegar-manufacturer who would buy honey as a source of "saccharine," yet to those who econ-

omize as friend France does, every drain of the cappings or washing of the barrels should be utilized. It takes only a little reasoning to see that, if they turn them into vinegar with a minimum of labor and expense, and can sell all their product at only 25 cts. per gallon, they are in reality obtaining the very nice profit of 15 cts. on each 2 lbs. of honey it took to make the gallon of vinegar. In other words, they sell their refuse honey to themselves at 5 cts. per lb., and receive a gross profit of 7½ cts. thereon. I think you will join me in advising them to continue their manufacture of vinegar, and even to try to extend it.

The French bee-men have always been very careful to let nothing go to waste; and out of the washings of the combs taken by the old ways, wine and vinegar have been made for ages. Yes, even the very water in which combs are melted up are utilized for vinegar. Having turned to page 339 of Hamet's *Cours d'Apiculture*, I find a singular corroboration of friend France's statements. Here is the paragraph translated: "The strength of the vinegar is in proportion to the quantity of honey to the solution. One-half kilogramme (one pound) can give two litres (quarts) of strong vinegar."

Philadelphia, March, 1887.

ARTHUR TODD.

It seems to me, however, friend T., that the vinegar made from glucose would be hardly equal to that made from honey, in the same way that we get a poor quality of almost every thing else when glucose is substituted for sugar or honey. The vinegar manufactured directly from corn, I suppose is equivalent to, or is exactly what we buy for white-wine vinegar. There are two kinds of vinegar generally in the market—cider and white-wine vinegar. The latter is supposed to be made from wine, hence its name. But of late, I believe it is made from corn or corn whisky. Now, we sell both kinds of vinegar. The white-wine vinegar has the whitest and nicest look, especially for bottling pickles; but almost everybody clamors for pure cider vinegar, especially where it is wanted for table use—to eat on pork and beans, lettuce, and the like. Good cider vinegar is generally worth 10 or 12 cts. per gallon at wholesale, and perhaps twice as much at retail. Now, if honey vinegar should get a reputation and name, it would be preferred to the white-wine or glucose vinegar, no matter how low the latter might be offered. The article on page 212 of our last issue throws some light on the subject.

HONEY VINEGAR.

FRIEND BINGHAM GIVES US A FEW MORE ITEMS.

PAGE 64, Jan. 15, exhibits a plan of ascertaining the amount of honey per gallon of water, and gives an egg as the means. If desirable to use honey in making marketable vinegar, no one can fail to see that 2 lbs. of honey will put an embargo on the business at once. If so much is required to produce an article retailing at 25 cts. per gallon, merchants and others will be slow to introduce it to their customers, provided, of course, the manufacturer must get pay for his 2 lbs. per gallon, and trouble and other expense in its shipment.

That two years is required to make such a com-

pound into vinegar is also a weighty article against economic use. While ordinary vinegar, said to be cider, is sold at wholesale per barrel at about 10 cts. per gallon, it would be useless to attempt to sell vinegar to a merchant for the value of 2 lbs. of honey, and necessary expense per gallon added. Any merchant would at once say, "The vinegar you offer will be part mother, and other waste, so that we shall not only pay for your honey and trouble, but a loss of several gallons will fall upon us, while the cider vinegar we sell holds out in measure, and we have no trouble with the mother and other matter not salable, left in the bottom of the barrel."

It is not that I wish to discourage any one in the effort to make vinegar; on the contrary, I have shown at conventions all the honey vinegar I have ever seen on exhibit at those places, and freely told how to make it. I have also written for the bee-journals, describing the process minutely.

With the egg-test, the only way to use less than 2 lbs. of honey per gallon would be to reduce the saccharine strength by adding one gallon of clear water to every gallon of honey-water that would float a fresh egg. Eggs are a very uncertain measure of specific gravity.

I have steadily maintained, that one pound of good honey would make one gallon of the best vinegar that could be made. I have evaporated the best vinegar I ever made or saw, and know that it does not contain quite one pound of honey per gallon.

I make a little sweetened-water tester which I sell to my friends for 10 cts., which is a test for vinegar-making, and will last a lifetime, and is always reliable. It will readily be seen, that vinegar containing 1 lb. of honey could be profitably sold at 25 cts. per gallon; further, that it will make in an ordinary house-cellar, in an open tub, screened with burlaps, in less than one year's time. I have beautiful candied honey evaporated from such vinegar as I have made and used exclusively in my family for the past 12 years, so you can get your honey out of such vinegar in case you should want honey more than vinegar.

HOW TO MAKE BINGHAM'S VINEGAR-TEST.

Take clear yellow beeswax, $\frac{1}{2}$ ounce, and two ordinary shot, $\frac{1}{8}$ inch in diameter. Heat the wax so it will be soft, and put the two shot into the center of it. Now make a ball of it like a marble. Its upper surface will rise just to the surface of the vinegar, or sweetened water, if it contains one pound of honey per gallon—just the amount needed for fine vinegar.

T. F. BINGHAM.

Abronia, Mich.

BEEES IN YUCATAN.

MORE ABOUT THE STINGLESS BEES.

ONE of our subscribers, Mr. J. M. Beatty, Shaw's Landing, Pa., sends us the *Meadville Gazette*. From an article on Yucatan and its climate, people, and productions, written by a Dr. Roberts, we clip the following paragraph, giving us an insight as to how they keep bees down there on that peninsula south of the Gulf of Mexico. We presume that the race of bees are the same as have been previously described as being found in some parts of Mexico.

Here we had an opportunity of seeing the manner in which honey is produced—one of the great staples of Yucatan, as large quantities are consumed by the inhabitants. We notice at one end of the beautiful garden a picturesque shed covered with tile. On inquiry we were told it was a bee-house, and upon examination we found it contained a large number of bee-hives of very peculiar construction. Under the shed was placed a framework running the whole length of the building—wide at the base and running to a point near the roof, thus forming a sort of inclined plane fronting outward on either side of the shed, or bee-house. On the sides of this framework the hives were placed. They are made of logs of wood about twelve to fifteen inches in diameter, and from two to three feet long, the inside being cut out, leaving a thin shell of the log. Each end is sealed up with clay or cement, and in the center of this peculiar hive a hole is bored just large enough to admit a single bee. These hives are placed on the inclined plane, or framework, under the shed, commencing at the bottom and laying one on top of the other to the top, with the hole in the hive facing outward. When filled with hives the shed presents the appearance of a log-heap, sawed up, ready to be split into stovewood. The bees are different from ours. They are a trifle larger, a little lighter colored, and have no sting—in this particular they are a great improvement upon ours. When in the hive they place a sentinel at the hole, and no bee is allowed to pass in or out, except such as have the permission of their guard. The sentinel dodges back to let the other bees pass in or out, but almost instantaneously his head is seen in the hole after the passage of the other bee. We watched these little sentinels a long time with much interest, and thought that if human beings, intrusted with responsible positions and duties, were half as faithful as these little sentinels, we should have a much more virtuous and happy world.

FIRST-CLASS HONEY, AND THE MARKET.

IS THE FLAVOR OF THE HONEY, WHEN LEFT IN THE HIVES, IMPROVED?

I CAN not agree with friend Russell, on page 46, nor with any one else, that "there is but a small proportion of the honey produced at the present day that is strictly first class." His statement is based on the idea that capped honey must be left on the hives until late in the season, that it may attain its finest qualities. This I consider a mistake. I believe comb honey is *finished* when capped, and the sooner it is removed the better. Many of our friends who have left honey on the hives until late in the season have stated that they found it to be finer in every respect. It certainly does *appear* finer when cut or broken or tasted; but as far as we can consistently go is to concede that the quality *appears* to be better than the same honey removed in the early part of the season. Honey taken from the hives in the heat of the summer will, of course, be softer and thinner than the same quality of honey taken in cooler weather, and after it has a little age. I think our friends who advocate leaving it on the hives till the close of the season will find that their capped comb honey, removed from the hives as soon as capped, and placed in the honey-house, will, at the same time of the year, compare favorably, and I may say equally, so far as quality is concerned, with that left on the hives. It certainly is not subject to the liability of becoming soiled or stained, as when left on the hives.

I think, as to the sale of our production, much more depends upon the manner of preparing, packing for shipment, and a few other things, than whether or not the perfectly capped sections be left on the hives until late in the season. We well know, that

of two cases of honey which the producer knows to be exactly alike, so far as quality, fineness of flavor, etc., are concerned, from some cause, one will be cleaner and clearer white than the other—at least nineteen out of twenty customers will select the clear white, even at a better figure.

I think there are many more important things to consider in regard to the future honey market than leaving perfectly capped sections on the hives for any length of time, as to our success in general. I fully agree with friend Heddon, on page 54, in regard to a special convention, as "there is much else to look after."

C. W. KING.

Kalamazoo, Mich., Feb. 10, 1887.

Friend K., although there is a great deal in what you say, I feel quite certain that the quality of honey is much improved by being left a month or two in the hives. Basswood honey, for instance, is unpleasant to many people, when first gathered. This is the case, even if it is capped over. Let it stand in the hive, however, until fall, and it increases in density, becomes darker colored, and loses the rank green basswood taste, becoming mellow and rich. I would not, however, think of treating sections of honey in this way. People who want old ripe honey had better have it extracted, or, if you choose, have such honey built in regular brood-frames, and then cut it out in chunks to put on the table. When sufficiently ripened, even basswood honey will get so thick that an extractor will hardly throw it out, and this kind of honey is the sort that pleases me. In transferring colonies in the spring we often get hold of nice chunks of this old ripe rich honey. I do not know that anybody has intended to recommend this sort, however, to put on the market. You are right in thinking that people will take the white clean honey every time.

FOUL BROOD.

HOW TO DETECT IT IN ITS EARLY STAGES.

AS spring is at hand, and as I understand it is generally admitted to be hard to distinguish foul brood in its first stages from chilled brood caused either by carelessness or ignorance, the following way will enable even the novice to detect it at its start. At this time its spread, and often a general epidemic among the bees in a large territory, may be avoided. In March or April, according to locality (and about the time when bees are looked after for other purposes), is your opportunity. Good colonies will have large sheets of brood in the center, just hatching out. Now, if in such sheets any cells remain unhatched, with the well-known little hole in the center, they may be, almost to a certainty, put down as having foul brood, and you had better stop all exchanging of combs, and prepare for the worst. It is too late when you can smell it outside or at the entrance, and such cases can occur only when a colony has not been opened for a long time. It costs but little if any more time to keep a lookout for it, when your eye is once accustomed to it. In case the disease is introduced by the feeding of but a little affected honey, as is generally the case, and therefore is, as yet, local, it may often be got rid of by cutting out the affected cells. In cases like the above, where every doubtful cell is carefully cut

out, and no new ones are appearing in about ten days after, and there is still doubt, a good plan is to put the colony to the swarming-test, which is as follows: Keep the brood-nest contracted; feed, if not much honey is gathered, and thereby compel the bees to swarm. This they will do generally, providing it is in the swarming season. As foul-broody bees are not supposed to swarm, this would prove their health.

C. H. LUTTGENS.

Hammon, N. J., Feb. 17, 1887.

A CAVE FOR WINTERING.

QUEENS FROM THE SOUTH NOT INFERIOR TO NORTHERN-BRED QUEENS.

IHAVE a cyclone cave, 6 x 9, excavated in the side of a hill, or knoll, deep enough so that the top of the cave is level with the surface of the ground, and it is grassed over as any lawn should be. This cave is lined with large sheets of tin, 7 x 9, top, bottom, sides, and ends, then ceiling up with pine lumber. There is a small ventilator on top, 6 x 6 inches, and a trap-door. For 87 days the snow has covered the door and all, and sometimes the ventilator. Of course, the cave is very dry within. In this cave there are 40 colonies of bees, in Simplicity hives, piled four and five deep. Between each hive is spread one thickness of new coarse muslin. One end of each hive is also raised one inch from the other. Now, I should like to ask, will the bees in the cave live? If they do, will they be in good condition in the spring? If the bottom hive and the one next above it shut tight together, as some of these do, what will be the effect on those two hives? The temperature of the cave in winter, when no bees are there, varies from 34 to 40°.

THE DIFFERENCE BETWEEN THE ITALIANS AND THE BLACKS.

My bees are within one or one and a half miles of bee-pasture. What honey the blacks do store in sections is capped very nicely—nicer, I believe, than that stored by Italians; but my blacks do not make the amount of honey Italians do; so from my limited experience I have to say, that, surrounded by white clover or timber, blacks will store as much, perhaps, as Italians. But where honey must be carried any great distance, I believe the Italians far excel the blacks. I have had some experience with different strains of Italians; that is, in the last two seasons I have received by mail, from different States in the Union, over 50 Italian queens. I had an idea that queens from the Southern States would produce bees less able to withstand the cold of our Northern winters, and be less ambitious. I am now satisfied, however, that this is a mistake. Last summer I had some dealings with our friend I. R. Good; and from him I obtained 10 nuclei from his apiary in Middle Tennessee. Those bees would be the first out in the morning, and the last in at night, rain or shine. This may not prove any thing, perhaps; yet I am perfectly satisfied that Southern bees are not lacking in ambition when moved to the North. My first queen came from E. M. Hayhurst, Kansas City, Mo. At that time there were only three or four pure Italian queens in my vicinity. Wishing to have a few Italian bees of my own rearing, after the black drones were about all gone I bought one dollar's worth of Italian drones from A. I. Root.

They came by express. Through that strange experiment I was fortunate enough to raise three purely mated queens, the progeny of which suit me the best of any I ever saw.

J. W. PORTER.

Ponea, Neb., Feb. 8, 1887.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ALSIKE.

THE alsike clover-seed I got from you last spring came up and grew splendidly, but the dry weather in July and August killed all that I sowed on old timothy meadow, being about 25 acres. But I sowed some in my orchard, and I could not ask for a finer stand. The ground had been planted in potatoes the year before, and the potatoes were thrown out in the fall with a plow. I dragged the ground crosswise until I got it well leveled down, then I spread on the seed and dragged it well after that. This I did March 27th. The weeds came on thick and fast; but as soon as they got up enough to begin to shade the clover I shaved the ground over as closely as I could with my mower. Then the clover grew very rapidly, and was soon showing bloom. I was surprised at this, as I thought it did not bloom until the second season. I want to sow more the coming spring, but shall sow it on well-prepared ground.

C. M. LEWELLING.

Western Nebraska, Feb. 7, 1887.

Your suggestion in regard to mowing off the weeds is a good one, friend L. I suppose one reason why alsike seldom blooms until the second season is because it is put on to oats, wheat, or some other crop of grain. If sown early in the spring, and given the entire ground, keeping the weeds out as you suggest, until the clover starves them out, it will, I believe, give a pretty good yield of honey the first fall.

SHIPPING SWARMS OF BEES ON ONE FRAME OF HONEY.

As I am a reader of GLEANINGS I should be glad to have you give your opinion as to the practicability of shipping full swarms of bees on one frame of honey, to provision them on their journey. As it would take no longer to make a light box to hold a swarm than to make a cage to hold one pound of bees, I am of the opinion that bees so shipped would save a great deal of time in putting them up, and could be sold at reduced prices if they can be shipped successfully by the swarm. I have more than I can manage well, and I should be glad to have you give your opinion, for my benefit as well as for others so interested. As to preventing swarms on Sunday, as spoken of by C. M. G., page 100, Feb. 1, I think the plan would work with black bees, but I think it doubtful whether it would work with Italians, as I have had them swarm with not a queen-cell started in the parent hive.

W. A. SANDERS.

Oak Bower, Hart Co., Ga., Feb. 21, 1887.

Friend S., generally speaking I do not know that there is any better way to ship swarms of bees than on a frame of honey—that is, so far as getting bees safely to their destination is concerned. This comb, how-

ever, must be old and tough, or it will get broken in transit; but as we find it difficult to get a sufficient number of such old and tough combs built securely fast to the frame clear around, we have adopted the plan of wiring combs. Then, again, when the purchaser receives the bees, this frame may not fit his hives. In that case it is of little or no use to him. For this reason we use our shipping-box in preference, for a half-pound, or one or two pounds of bees. When we sell a colony we always use frames of honey, or, better still, a frame containing both brood and honey.

SEPARATORS NECESSARY.

In my experience in the production of comb honey, I have come to the conclusion that separators are necessary, if we want honey that can be handled with any degree of satisfaction; but I believe we can work successfully with two for each case. Let us take a section-case for illustration. Divide it into three equal parts, with two separators. If the case holds 24 sections there will be eight in each division. Now, when the center one is all capped we take them out and put in empty ones, and every thing goes on all right; but if we don't put in a separator between the empty and the full boxes they will build the full sections into the empty ones; and when it is filled it will also be built into the adjoining one, and so all through the empty boxes put in the center, and that will be 8 boxes spoiled, and the row each side will also be bulged on one side; that makes 14 spoiled by taking out the center and replacing empty boxes without separators. Now, by using two separators we can get fair combs without tiering up.

North Springfield, Mo.

W. H. RITTER.

No doubt you can get along very well, friend R., in the manner you mention; but would it not be cheaper to use more separators, and not have so much manipulation, especially where 100 colonies or more are to be gone over?

DO NOISE AND JARRING INJURE BEES?

I have seen in GLEANINGS that noise prevents bees from doing well; and to the end that a proper conclusion may be arrived at, I beg to make the following report: I have ten colonies of bees in the yard of my residence. These hives are within ten feet of the house, and some of them directly under our windows. They are all about one hundred feet from the Central and the Western Railway of Alabama. Over these two roads there pass at least fifty trains a day, at all times of the day and night, and they sometimes jar the house in which we live, and so must jar the bees also. I thought for some time that the jarring, whistling, and ringing of bells, as these trains pass, would injure the bees; but so far (and the bees have been there a full season or nearly a year) I can discover no injury to the bees from the trains. They wintered exceedingly well, and now they are rapidly breeding with the hives full of bees. This certainly ought to be a test as to whether noise injures bees or not. We made no honey, it is true, last year, as it was a failure in this section everywhere; but if bees being in good condition is any proof that the noise and jar of the trains do not injure bees, then we have the proof that it does not.

Atlanta, Ga., March 5, 1887.

T. E. HANBURY.

A SWARM OF BEES IN A FENCE-POST.

I am very busy getting settled in our new home. I shall not have the many advantages for bee-keeping here that I did at Mohawk. I shall have to see what may be done in a location where little natural forage seems to be afforded. I shall report as I advance. I go to Mohawk for my bees about April 1st. It is about one month earlier here than there. I find I am not without bees here, even now. I notice one stock in a fence-post, and one in the roof of the house. Those in the post seem to have wintered well with one side open to the weather. This indicates a favorable location for wintering out of doors. I will report results after I get all at work in hives.

LYMAN C. ROOT.

Stamford, Ct., Mar. 21, 1887.

Why, friend R., you are starting a new idea in the way of hives. A fence-post would have one advantage—it would not be easily blown over by the winds. It has been suggested, that the rotten wood found inside of a tree has a special advantage in keeping the bees dry, and permitting the necessary ventilation. A rotten log is something like the old straw hive. Put a super over them filled with sections, and may be you can give us a good report, even if your present locality is not favorable, like your old one. We are glad to hear from you in your new home.

NOT GOING OUT OF THE HONEY BUSINESS YET.

I have 22 colonies in fair condition, from 25, fall count; and although I have had more than the usual average of losses, and less than the yearly estimated surplus, I can not help but believe there is truth in the following, copied from Prov. 14: 23: "In all labor there is profit; but the talk of the lips tendeth only to penury." As long as I can get 300 lbs. of pork for 100 lbs. of honey, and 100 bushels of wheat for 600 lbs. of honey, I am going to raise the honey and let others raise the pork and wheat, no matter if honey goes down to 3 cts. I believe the price of honey is comparatively too high, regardless of all the noise which has been made about its being ruinously low. I also believe that all the honey in the country can be easily disposed of by employing traveling agents of the right stamp, and sell direct to the consumer.

I. T. GOULD.

Corunna, Mich., Mar. 21, 1887.

HOW TO REGULATE THE VOLUME OF SMOKE IN A SMOKER.

I suppose you have often noticed, when using smokers, when the wood was dry and the smoker upright, it would burn too fast; and when the smoker was laid down flat it would go nearly out in a few minutes, sometimes entirely. Now, I have devised a plan to give the smoker any slant, and thereby control the draft. The plan is this: A corner clamp, with slot therein, and a small thumb-screw, is fastened to the corner of the bellows. A rod is run through the slot, and fastened by a slight turn of the thumb-screw. By adjusting the rod, the smoker-bellows may be held at any angle. I should like to know what you think of it.

O. F. WINTER.

Winterton, Sullivan Co., N. Y., March, 1887.

We never have any trouble with the Clark smoker, as now constructed, going out or burning too fast when not desired. If we want a great volume of smoke we turn the

Clark smoker on end. If we want it to die down soon, we lay it so that the barrel lies down in the grass. If we want it to strike a medium between these two extremes we lay it on the bellows, the same as seen in our price list. As you ask my opinion in regard to your invention, I will be free to say I think there is too much machinery about it for the average bee-keeper; and while I think it would accomplish all the results that you have claimed for it, yet I think that the same results, or nearly the same, may be obtained by the methods I have given above.

IN FAVOR OF EMPTY FRAMES WITH STARTERS ONLY.

I have read with interest your journal in regard to empty frames vs. empty combs. It may make some difference in different locations, but I have found in this section that I can get more surplus honey (in comb) from a swarm hived on 10 L. frames with only one-inch starters to get straight combs than I can a swarm hived on 10 L. frames full of empty combs. In the spring of 1886 I united two colonies with others, as they were weak in stores, so I could have the 20 frames to experiment on. The fore part of May, 1886, I hived a swarm in each of those ten-frame hives filled with comb. They made me no surplus. The last of May, 1886, I hived a swarm in the ten-frame hive with only starters of foundation. They filled the ten frames with comb, and gave me 24 lbs. of very nice comb honey. The swarms were alike, the three queens being nearly of the same age. I am convinced I can do better by hiving on empty frames than I can on those filled with empty combs—that is, box honey.

JOSIAH EASTBURN.

Fallsington, Bucks Co., Pa., March, 1887.

W. S. KALER DEFENDS HIS SWARMING-BOX.

I see on page 168, March No. of GLEANINGS, Mr. Felton, of Newtown, Pa., has misrepresented my swarming-box to some extent, and I would ask the privilege of explaining to your many readers the advantages of my box.

1. You do not stand and hold my box. Wait till the bees cluster; put the box under, then shake, and they cluster on the comb.

2. We use a frame of comb in the box, and the queen will alight and stay on it every time.

3. The bees will stay on comb in a box any reasonable length of time, and can be carried any distance, without the loss of bees.

4. The mode and cheapness of its construction, and the indorsements that it is getting from bee-men, proves its value to them. I make this statement to our brother bee-men who take GLEANINGS.

Andersonville, Ind., March 5, 1887. W. S. KALER.

LUTGEN'S METHOD OF CAUSING A BEE FILLED WITH HONEY TO EXPEL IT, A PRACTICAL SUCCESS.

I saw, in a recent issue of GLEANINGS, that, if you would catch a bee by its wings, and press the extremity of its abdomen on the thumb-nail, that, by the pressure thus exercised, you would cause the bee to regurgitate, or expel, in some way, the honey from the honey-sack. I put the matter to a practical test, and I assure you the test was in every way satisfactory. The experiment was conducted in the presence of Mr. A. S. Beach. As soon as the pressure was applied, the honey would

appear at the bee's mouth, in the form of a beautifully transparent globule. Mr. Beach pronounced the honey perfectly delicious—as fine, he said, as he ever tasted.

To see the little fellows fall on the ground before they reach the alighting-board, and panting for breath, reminds one of summer time. The bees are getting this honey from the maple, willow, and elm trees that grow on our creeks in this county. I live near the South-Carolina line, in Mecklenburg Co.

J. A. ARDREY, M. D.

Pineville, N. C., Feb. 17, 1887.

ARMSTRONG'S T SUPER—SOMETHING FURTHER FROM FRIEND ARMSTRONG.

Many thanks for kind words spoken in regard to my T super. I was thinking some of making it to have only one side to open; but then in case it should be reversed it would have to be reversed back again before the sections could be taken out, and the difference in the cost of construction would not be over 3 cents each, or $2\frac{1}{2}$, so I have concluded to let it be the way it is until the present craze of reversing is over. I think it would make a better case to have one side made whole, or in one piece, and, of course, our object should be to have every thing about our hives as simple, cheap, and practical as possible. That has been and is still my aim, and I know these are your sentiments. One good feature about my super is the double clamping wedges. They hold the sections so firmly together that we do not have to use such heavy T tins. Just examine this feature and see how firm they are held together. You could almost jump upon them with your feet, and not break through, and that with only $\frac{3}{8}$ of an inch base to the tins.

E. S. ARMSTRONG.

Jerseyville, Ill., March 5, 1887.

THE LARGE SWEET CLOVER OF THE SOUTH.

Referring to J. P. Caldwell's nameless plant (see GLEANINGS, Jan. 15, and Feb. 1, 1887), and mellot in the South, I will say I have seen, near Greenville, Alabama, the sweet clover in question in thousands of acres of pasturage and roadsides, gone wild, and as tenacious as the palmetto of the same locality. It grows quite large, so that stock which will eat it, brouse off only the branches. It is only a soft wood, hollow stem, never growing large, or more than six or eight feet high. It is good for bees when seasonable, but hot sun and drought render it useless. It blooms and seeds once a year. Now, our beautiful white-bark mountain shrub, blossoming every time it rains after a considerable drought, is a deciduous and perennial bush, with large grub of hard roots. It grows naturally in my yard among cedars among limestone. Because of its stinking smell when the leaves are mashed, some call it "polecat." Others name it wiesatch. I am told it is neither of these shrubs, which are well known out West, along with the great honey-plant, catclaw. Our sweet-flowering shrub grows much like privet, only with whiter exterior. Many call it the bee-bush, so much is it besieged by them for honey.

A. W. BRYAN.

San Marcos, Tex., Feb., 1887.

HIVING SWARMS ON EMPTY FRAMES, A SUCCESS.

I hived 10 swarms on empty frames the past season, and it was a complete success. I hived them on 8 frames, L. size, spacing them just 15-16 inches apart from center to center. I think this is very essential. There was but little drone comb, and the combs were very straight, except in one rather

small swarm the frames had fdn. starters. Sections were put on about two days after hiving. I do not have any trouble in getting the bees in the boxes when the frames are close together. I have tried it two years. My bees are mostly blacks or hybrids. All the bees in this locality are more or less mixed with Italians, I think, as yellow bands can be seen in about every swarm during the honey season.

Clinton, Ill.

HENRY WILLSON.

FIVE DOLLARS PER DAY AMONG THE BEES.

I am not discouraged with my experience during the summer of 1886 among the bees. I started with 13 colonies and increased to 36, except 3 lbs. of bees and 5 queens. I realized about \$5.00 per day for the time I spent with the busy workers, besides the increase. Nearly all of my bees are pure Italians, and they are as good as I want.

HOME-MADE COMB-BUCKET.

Some time ago I saw an account in GLEANINGS of a man who wanted legs to his comb-bucket, but you thought the cost would be too much. As brains are cheaper with me than dimes, I made one. I went to the tinner and got a sheet of tin 20x28 inches and bent it thus: [J] The sides are 10 inches high, and the bottom 8 inches broad; then I put in pine ends, one inch thick. I slip them in only $\frac{1}{2}$ inch, leaving it 19 inches long, 8 inches wide, and 10 deep, in the clear. Now, you have pine ends, and you can put on as long legs as you wish. A small strip of wood, nailed on the inside of the ends, supports the combs, and a strip of molding around the top protects the tin, and the bucket is done. The cover is made of wood. I got the tin for 20 cts., and the wood was out of the boxes in which goods were shipped to me. My bucket doesn't cost over 25 cts., and is robber-proof. You can put handles to it to suit. As good a way as any is to fasten two pieces of small cotton rope to the ends, like a bail, and both can be taken in one hand.

Arcadia, Kan.

S. C. FREDERICK.

BEES FLYING OUT IN WINTER.

Why do my bees fly when the weather is below freezing? I packed them in boxes 4 ft. wide x 12 ft. long, holding 18 hives. The bottom is 4 in. thick, and is stuffed with dry sawdust, and there is an opening of 2 inches for each hive. The hives are set close together each way, and 6 in. of clover chaff is in front, and the same on top. To-day I find the snow covered with dead bees, and roaring in the hive as they do in hot weather. Do you think they are too warm?

My crop of honey for last year from 42 colonies was 3600 lbs., and all June honey. I increased to 91. I sold one-third of the honey at home for 1 dollar per gallon, and will try to sell twice that amount this year at home. Bees had a good fly Jan. 26.

CHAS. BUDDINGTON.

Attica, Mich., Feb. 4, 1887.

I fear your bees are too warm, as you have them arranged. Can you not give a little more ventilation through the covering on top? I should prefer the entrances a little larger, to those colonies that seem to be making so much noise.

WHAT OUGHT WE TO EXPECT FROM TEN ACRES OF ALSIKE?

I had, in the spring, 20 colonies, and from the 20 colonies I received 840 lbs. of comb honey, and increased to 56. My honey was nearly all from red clover and motherwort. Though white clover was

doing its best at blooming, the bees paid very little attention to it. I got 15 and 18 cts. per lb.

There are, within half a mile of my bees, 10 acres of alsike clover, which was sown last spring, and it looks well. How much honey per acre does it yield on good ground? Did you ever notice bees getting pollen from dog-fennel? I have watched them load from it.

J. E. HENDERSON.

Roney's Point, Ohio Co., W. Va., Dec. 14, 1886.

I do not know, friend H., what 10 acres of alsike ought to do in the way of honey. Our facts and figures in this matter are very meager. I would say, at a rough guess, however, that 10 acres of alsike ought to keep 100 colonies of bees busy for perhaps three or four weeks; and during these three or four weeks they ought to store, say, 10 lbs. of honey each. This would make 1000 lbs. for the 10 acres. If anybody else can do better, let him try his hand at it.

NOTES AND QUERIES.

A SAMPLE OF FLORIDA HONEY.

I SEND you by to-day's mail a small sample of honey, made by those Florida "lazy bees." It has been extracted nearly 10 months. What think you of its keeping qualities? We "crackers" think it very good. I also inclose a twig from an orange-tree budded last spring. It is about 4 feet high.

W. L. DRUMRIGHT.

Sarasota, Manatee Co., Fla., Mar. 15, 1887.

[The honey is certainly beautiful, friend D. Are we to understand that it is from orange-blossoms? The specimen sent is exceedingly thick, of very fair color and beautiful flavor, although it would at once be called Southern honey, and perhaps might not bring as good a price as our white-clover honey of the North.—Thanks for the twig of orange-blossoms. The beautiful fragrance is still retained. If we could have some honey that tastes as these blossoms smell, would it not be an acquisition?]

TIERING UP: WORKING IN THE RAIN.

In regard to tiering up cases of sections, the trouble is that they get very brown on top, and, in the T super, I think they would get brown on bottom and top. How is this? I intend to try the Doolittle surplus arrangement, as described by Viallon, which protects the section all around. I propose to use them on zinc honey-boards, with wooden rims making a bee-space underneath.

TRANSFERRING IN THE RAIN.

Our experience has been, that a warm drizzly day is the best time to transfer bees. F. C. THOMAS.
Spring Valley, O., March, 1887.

COMBS MELTING DOWN.

Having received several letters from bee-keepers in the Southern States, asking how I prevent combs from melting down in the hot days of July and August, I wish you to please state that I do not know, for I never had a comb melt down yet. It gets hot here in Oyster-Creek Bottom. I use the Simplicity hive, two stories high, painted white, entrance open full width, and a rousing colony of bees in the same; and if that keeps the comb from melting, it is all I know about it. JOHN W. ROSS.
Phair, Texas, Feb. 1, 1887.

[Thanks, friend R. I believe the whole secret of not having combs melted down in hot weather is, to have all the hives painted white; and if the colony is strong, a full-width entrance is an additional

security. Here in the North (and we have some pretty hot weather too) we have all of our combs wired.]

HOW TO MAKE FIRE-KINDLERS OUT OF COMBS.

Your comb kindlings are good, but I will tell you how I prepare them. Take a one or two quart Mason jar, and fill with oil, say $\frac{1}{2}$ or $\frac{3}{4}$ full, and put the combs in whole. The part above the oil will do to handle without daubing the hands. After the kindlings are in, unscrew the cover and place the cob in front, and apply the match. Have some dry cobs ready, and place in the jar, and screw on the cover. One cob will burn 5 minutes, or longer.

Vernon, O., Jan. 7, 1887.

C. M. TRUNKY.

HOW SHALL WE KEEP COCKROACHES FROM HONEY?

Please tell how to get rid of cockroaches. A lot of rats could not be more destructive to comb honey, and not as nasty. They will crawl through almost any crack where the air can come through, then they multiply and grow fast. They fly from place to place. Coal oil will effectually cure the ants, but the cockroaches fatten on it—at least, sulphur and coal oil has not exterminated them for me.

D. C. McLEOD.

Plena, Ills., Feb. 14, 1887.

[As we have no cockroaches in our locality, we have had no experience with them. Can some of our readers who have had, offer a remedy?]

CAN THE BEES OF TWO QUEENS WORK TOGETHER HARMONIOUSLY?

In regard to the question asked on page 99, Feb. 1, by friend J. M. Cruickshank, I have tried such a hive as he describes, with the result that you give in your foot-note; viz., that, as soon as the honey-flow is over, the bees ball their queen in one swarm and then unite. FRANZ ZSCHOEIMITSCH.
Monticello, N. Y., Feb. 10, 1887.

TAKING BEES OUT FOR A FLY.

What do you think of taking bees out of the cellar on warm days, to take a fly? J. A. TUCKER.

Horace, Ills., Feb. 21, 1887.

[I believe the practice of taking bees out of the cellar for a fly is generally considered unnecessary. See what Dr. C. C. Miller has to say in regard to it in our last issue.]

WHAT KIND OF HONEY IS IT?

I send you by mail two samples of honey. Please let us know through GLEANINGS how the lighter compares with basswood honey in color and flavor; also tell us, if you can, what gives the other such a peculiar taste. It was the first we extracted last season. It was taken about the 10th of July. Milkweed, pleurisy-root, and sumach were in bloom at that time. We have no basswood here, and not clover enough to get a fair sample to judge by.

Brook, Neb., Feb. 22, 1887.

J. S. JOHNSON.

[Your lighter specimen compares very favorably in appearance with basswood honey, friend J.; but there is an unpleasant flavor to it—something like our autumn wild flowers—that would probably injure the sale of it. The taste of the other specimen is something I am not familiar with.]

THE ONE-STORY CHAFF HIVE A SUCCESS IN IOWA.

On p. 189 Ernest discusses the merits of one story chaff hives. I made ten of them three years ago, with Simplicity half-story covers. I have left them at the same place, winter and summer. They are all right yet. This is the third winter, and I haven't lost any colonies in them yet. J. N. SHEDENHELM.

Ladora, Ia., March, 1887.

HONEY TO BE NAMED.

Will you please tell me what kind of honey I send you sample of? I bought it in the central part of this State. Is it not California honey?

H. P. LANGDON.

East Constable, N. Y., Mar. 17, 1887.

[Friend L., the sample of honey is something I am not much acquainted with. I will explain to our readers that it is, when partially candied, of almost snowy whiteness. The flavor comes nearest to some honey I once saw in Michigan, said to have been gathered from a species of fireweed, if I remember correctly. There is very little flavor of any kind in it, and it is almost like simple syrup, although there is a slight taste that reminds one of the woods.]

REPORTS ENCOURAGING.

NEW COMB HONEY IN WISCONSIN ON THE 18TH OF APRIL.

I NOTICED an article in March 1st GLEANINGS, headed, "New Honey in Ohio on the First Day of May, and ended with, "Can any one beat that? I should like to hear from them if they can." Signed J. S. Barb, Bristol, Ohio. Well, I do not wish to boast, but I can beat this considerably, even in Wisconsin. I finished carrying my bees out of the cellar the 16th of April; and, as I reported before, the most of them were very weak; but I had one colony that was good. My bees are all weighed when they are put in the cellar, and again when they are taken out, and this one I weighed again on the evening of the 18th, and found a gain of 12 lbs. of fine honey from soft maple. I then put on surplus combs, and the weather turned cool, but still they stored about 20 lbs. more in April. This swarm was carried out the night of the 16th, and they were the lazy Italians too. If any one can beat this, let me hear.

Hillsboro, Wis., Mar. 10, 1887.

ELIAS FOX.

BEES IN ARKANSAS.

In Southwestern Arkansas my bees began to gather pollen about the 20th of Jan., from the maple and water-elm. There have been but five or six days since but that the bees have been gathering pollen or honey. I noticed in GLEANINGS, March 1, that some one said he had new honey the first of May. Well, if he were down here he could get some in March. I had some new surplus honey last year the 15th of March. My bees are the Arkansas brown bees—a very large bee. J. W. TAYLOR.

Ozan, Ark., March 5, 1887.

HONEY FROM THE HARD MAPLE.

Bees in the Tar-Heel aparies are booming. The bees have been "dropping" in right along the past week, and continue to do so at present. They are storing honey from the hard maples (we have no other here). Pollen has been stored plentifully since January 26th. It is an unusual thing here for bees to store so much honey from maple as they are now doing. Most colonies have plenty of young bees reared, and are already flying.

5—ABBOTT L. SWINSON, 71—70.

Goldsboro, N. C., Feb. 26, 1887.

THE FIRST SWARM.

Our first swarm came out this morning at 8 A. M. Temperature 58°. Bees are bringing in some honey from haw, willow, etc. Even our nuclei have been building comb for ten days—the first noticed—drone of course.

J. W. K. SHAW & Co.

Loreauville, Iberia Parish, La., Mar. 1, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

BLUSTERING WEATHER.

AT this writing, March 29, we are unable to give any thing definite as to the condition of our bees. There has not been a suitable day for examining them for the last two weeks. As we felt sure that they were not running short of stores, we did not peek under the cushions and "heft" the frames as we could have done, in a manner before described under this head. Had there been one or two days warm enough, we should have thoroughly gone through the apiary, solely for the purpose of ascertaining whether any more foul brood had developed; but every day has been so chilly that we hardly thought it best to pull out and examine every comb in the apiary. It might be disastrous to some of the weaker colonies. Besides, if there is a possible case of foul brood during this cold weather when no bees are flying, it could hardly do any harm.

To-day, while sitting here it is cold and blustering outside. The temperature this morning was 12 degrees above zero—rather cold for us at this date.

OUR OUT-APIARY.

We have already had some correspondence with a party with reference to establishing an out-apiary. The location is five miles from Medina, and we are informed that there is an abundance of alsike sown within the immediate vicinity. It does not, however, have very much basswood near by, owing, probably, to the fact that there is a sawmill half a mile or so distant. In fact, I might say it is quite difficult to find any considerable amount of basswood in any one location within a radius of five or ten miles of Medina. Farmers around here have been in the habit of cutting up their basswood logs for the "Home of the Honey-Bees," to be cut up into sections. In the words of that homely expression, we have been "cutting off our own nose," seemingly. However, we will not take space to discuss here whether or not bee-keepers as a rule had better cut up the basswood-trees, or let them remain for the bees.

As has been stated, this out-apiary will be used for the purpose of testing more thoroughly some of the modern appliances for the production of comb honey. Our own home apiary for the last ten years has been devoted almost exclusively to the rearing of queens; hence we realize the necessity, not only for our own benefit, but for the benefit of our customers, of testing every thing that comes up—in short, as far as it may seem feasible and practicable, to continue more thoroughly the work of an experimental station.

Later.—Since writing the above we have had quite a material change in the weather. The bright sun is shining, and the glorious (? "Medina mud" has come. There is still a cold breeze this afternoon, and scarcely a bee is flying; therefore we can not, as we had hoped to do, report in regard to foul brood.

TOBACCO COLUMN.

AN INCIDENT; HOW THE FUMES OF TOBACCO FROM THE BREATH OF A USER CAUSED SICKNESS IN A COMPANION.

AS I was reading George B. Morton's article on the use of tobacco, and how disagreeable the smell of the breath is of those who use it, it reminded me of a little experience I had when a boy. My father sent me to mill, and a neighbor rode along. He was a young man, but he used a great deal of tobacco. I stood it as long as I could, then I made some excuse and got in the other end of the seat, so the gentle breeze was in my favor. Pretty soon we overtook an old fellow, and asked him to ride; and as I was a little fellow I had to sit in the middle, and it so happened that he was just about as full of whisky as the other was of tobacco, and about this time we came between two pieces of timber where there was no air stirring, and I soon got so sick that I vomited, and could not drive, and had to lie down in the back end of the wagon. Every thing was swinging round and round. Oh dear! how sick I was! and really I thought then it would kill me. They were alarmed, and asked me what was the matter. I told them I guessed I was drunk on tobacco and whisky, riding between them. I did not get over it in several days, and it makes me feel queer now to think of it. Do all you can in this direction, and may God bless you!

JOHN BARLOW.

Sac City, Ia., Jan. 24, 1887.

My wife has quit using tobacco, and says you may send her a smoker. If she ever smokes any more I will pay you for it. WM. D. TITCHENELL.

Pleasant Hill, W. Va., Jan. 13, 1887.

Please accept this as my pledge to give up tobacco. I promise to pay you for the smoker if I use the weed again. J. A. BROWN.

Bryantville, Ky., Feb. 1, 1887.

PA'S PROMISE.

Pa says if you will send him a smoker he will never use any tobacco in his life, and will use all his influence against its use. F. A. THOMAS.

Morrilton, Ark., Jan. 23, 1887.

ONE WHO POINTS OUT THE WAY OF LIFE QUILTS THE USE OF TOBACCO.

My brother-in-law, George Malmsberry, has quit the use of tobacco, and says he will agree to pay ten dollars if he ever uses it again. He is a minister of the gospel, so if you think he is entitled to a smoker, send one to him. G. BRIGGS.

Garfield, O., Jan. 19, 1887.

A USER FOR 30 YEARS.

I was a habitual chewer for about 30 years. It has been some little time since I discontinued its use. If you see fit to send the smoker to my address, I agree to give you \$1.00 if I use tobacco again.

F. A. KINNEAR.

Lindenville, O., Jan. 27, 1887.

HAS USED IT FOR 20 YEARS.

I understand that you give a smoker to each tobacco-user, if he quits the bad habit. I have used tobacco for about twenty years; and I will quit using it in any form, if you will give me a smoker; and if I ever use the weed again I will pay you for the smoker.

W. J. HALTON.

Jordan Village, Ind., Jan. 8, 1887.

THE EFFECT OF TOBACCO ON THE HEALTH.

I have been considering for a long time what to do about quitting tobacco. To me, smoking, although a filthy habit, is a comfort; but I know it injures me. Five or six years ago I smoked so much that I became very nervous and debilitated, with a good dose of dyspepsia thrown in. Although much better, I am not over it yet. Now, as I am getting ready slowly to start in bee-keeping, I think a smoker will do me more good than smoking; therefore on receipt of a smoker, or your promise to send one, I will pledge you my word that I will use no more tobacco at any time in the future. If I do break my pledge, I will forfeit the price of smoker.

T. JENNINGS.

Rye, N. Y., Jan. 18, 1887.

The following comes to hand later:

I received the smoker yesterday, and feel much pleased with it, and thank you very much. I hope I shall be deserving of it. I was working in the barn, and just thinking about taking a smoke, when my boy came in with the smoker, and said the postmaster told him he thought it must be a patent rat-trap. As soon as I saw it I knew what it was, and came to the conclusion I had had my last smoke. So now I am in for it, and hope I shall be able to hold out.

T. JENNINGS.

Jan. 29, 1887.

We hope sincerely it will be your last smoke, friend Jennings.

HAS USED TOBACCO 45 YEARS, AND NOW TELLS HOW HE WAS INDUCED TO QUIT.

Friend Terry forwards the following good letter which he received. As it may help some brother who may be still a slave to the use of tobacco, we give it to our readers:

Friend Terry:—I have been a constant reader of GLEANINGS for the last five or six years past, and within the last couple of months I have noticed several very able and interesting articles from your pen. One of the articles appeared in the above journal, Dec. 15, 1886, and was headed, "Friend Terry on Tobacco." I must confess that the above article struck me very forcibly, and presented the subject in a somewhat new light to me. I had been using the weed for about 45 years, having contracted the habit when about 15 years old, and have used it ever since, without hardly stopping to consider at least the impropriety of the habit, until I became a reader of GLEANINGS, and ever since that time I have been somewhat under conviction. I felt that the use of the weed, to say the least about it, was a very filthy and expensive habit, and unworthy to be indulged in by any Christian being, and a habit in whose favor not one good word could be said. When that is the case with any thing, it should go down to oblivion never to rise again, and *there* is just where my pipe and tobacco have gone. The reading of your article above referred to did the business, and settled the question in my case. It was the last feather that broke the tobacco camel's back. I sincerely hope that it may have the same effect upon a great many more who are indulging in the same habit. The first thing I did after reading your article was to get up and lay away the old pipe and tobacco for ever. This was on the 28th of Dec., 1886, and I have not tasted the vile stuff since; and, by the grace of God, I never will. Now, you and Mr. Root may think that I was a pretty tough customer to convert, if it

took some five or six years of preaching, and, to succeed in the end, a double-handed dose. Well, friend Terry, I will admit that it looks a little that way; but then, I know that you will also admit that a bad habit of 45 years' standing is not an easy matter to break away from. All the satisfaction that I can see, that you and brother Root can get out of my case, will be that you can add the name of another convert to your list and the Tobacco Column; but I do not want you to send me a smoker nor potato-box. If I can not keep the pledge without them, I am afraid I could not with them.

G. W. HARRISON.

Wharton, Wyandot Co., O., Feb. 8, 1887.

MYSELF AND MY NEIGHBORS.

Who is my neighbor?—LUKE 10: 29.

WHY did God give us neighbors? I presume the answer would be, that he gave them to us to make us happy. Suppose, however, we change it about and say that God gave us our neighbors that *we* might make *them* happy. How would that do? We are almost unconsciously so much in the habit of being selfish that we answer questions from a selfish standpoint. In a sermon a Sunday or two ago, our pastor said that everybody is our neighbor when it is in our power to do him good, or to help him. If this be true, then when we are commanded to love our neighbors as *ourselves*, we are at all times to hold ourselves in as much readiness to do good to those we meet as to do good to ourselves. There is an unexplored region in this line, dear friends. You may be a little surprised to hear me speak of an unexplored region when so much has been said about the golden rule. Very likely you feel as if the subject had been exhausted. Well, it may have been exhausted so far as talk is concerned, but it has not in putting the words of our Savior into real practice. For instance, a few days ago I stepped out on the front walk and saw a man a little distance away who seemed as if he wanted to speak to me; and yet when I came near him he turned away as if he really did not want to see me after all. I finally spoke to him when he came up. His first words were:

"Mr. Root, I hope you haven't laid any thing up against me because I didn't do exactly as I agreed to."

"Why, my friend, I don't know what you mean. Your face looks familiar, yet I can not now recall any transaction in which you did not do as you agreed."

"Why, it was about those potatoes. I told you you might have them; but I met a man afterward who offered me five cents a bushel more, so I let him have them, and went off home without saying a word to you about it."

I was obliged to smile when I told him I had entirely forgotten the whole transaction. In any case, however, I assured him that I felt glad to know that he had been able to get a larger price than I offered; and he looked quite happy when I told him further, that, whenever a chance offered to

get a better price than I could afford to give, by all means to take it; and I assured him that I always felt pleased to see farmers get a good price for their produce, no matter whether it inconvenienced me or not. Since then I have made it a point, when offering a price for any such product, to add, "Now, my friend, if anybody else offers you more than I have offered, take it, by all means, and I shall be pleased for your sake."

Now, please do not understand, friends, from what I have said in the above that I would encourage anybody in breaking a fair and square business promise. If I had engaged a load of produce, and made calculations on using it to fill special orders, and the man should fail to fulfill his promise because he had a better offer, it would be quite a different matter. In the above I have had in mind only small produce, such as farmers are constantly bringing in—something I could use or get along without, with no inconvenience. In such cases I enjoy giving them standing permission to take up with a better offer whenever they chance to get it, and I do the same thing with the hands in my employ. Whenever any one of them gets a better offer than I am able to make, I *make* myself feel glad for his sake.

Our place of business is located on the way to town, and almost every day somebody brings in apples, potatoes, honey, maple sugar, and other things, to sell. After looking them over I decide what amount I can afford to pay. Then I tell them pleasantly that, if they choose, I am quite willing they should go up street and see what offers they can get there; if they can not do any better, bring them back to me. This way of doing business, however, seems, to surprise our rural friends, and a great many times I have noticed their smiling faces as they came back, telling me they had got a half a cent a pound or five cents a bushel better than my offer. Now, they sometimes have something I really want, and probably are not satisfied with what I think I can afford to pay them for it; and therefore I feel a little sorry to have them drive off. Self whispers, "Now, I really want that lot of strawberries; and I am afraid, if he goes away, somebody will offer him a little more, and I won't get them at all." At such times, however, I bid self get out and get down out of the way, just as I would a little unmannerly cur that was hanging around, watching for an opportunity to do some mischief. If the man comes back, and says I can have the lot, for he could get no better price, I am happy; and if he comes back saying he got a cent a quart more than I offered, I am happy also even then, for he is my neighbor; and whatever helps my neighbor *helps me*. One old farmer spoke to me one day about it. Said he, "Mr. Root, I have made up my mind after this to always give you the first chance, for I shall always remember the time when you told me to take those apples up street and do the best I could with them. I did as you said, and sold half of the load for a little better than you offered, and then you took the rest at just what you said you would. I tell you, it makes a man feel as if *one* man

who is doing business so was interested in somebody besides himself."

There is another way in which we can help others in our daily deal. It is quite a hard matter to decide, many times, just what you can pay for produce, especially the first maple sugar, the first ripe apples, or new potatoes, etc. I often do this way: If my neighbor wants more than I can afford to pay, I say to him, "I will pay what you ask, providing you will help me out if I don't succeed in getting my money back;" or, "I will take them at such a price; and if I get rid of them easily I will pay you five cents more per bushel." This is having the matter in my own hands, I know; but in such cases I am always very anxious to be able to give my neighbor a little more when I meet him next time, if it is a possible thing. You see, you shoulder the responsibilities together in this way. It would be no pleasure for me to do business, if I thought the man with whom I did business was selling at a loss.

Now, then, friends, we are coming to real business, and I generally have some sort of business in mind when I start out to write these neighborly talks. We have been selling the Parker machine for fastening starters in section boxes, for three or four years; and for general purposes we do not seem to get hold of any thing much better. At the time friend Parker gave me the idea, I told him I thought it would be worth to us \$5.00. When it began to have quite a large sale, however, I told him I guessed it was worth \$10.00 more; and now that it is having a still larger sale, I think he ought to have about \$25.00 in addition to what he has had already. In the same way, I gave Norman Clark, of Sterling, Ill., \$25.00 for the cold-blast smoker. As it has turned out, I don't think I gave him enough; and in talking over the matter we have concluded we owe him, in justice, about \$100 for his splendid invention in the way of smokers. Neither of these friends has asked for any more, and I don't suppose they ever thought of receiving any more; but for all that, it is a pleasure for me to give it to them. Friend Peet, who gave us the queen-cage, was also satisfied with \$25.00 I paid him some years ago; but as it still seems to receive the preference, I think we owe about another \$25.00. Friend Klinitz' queen-catcher is also having a very large sale, and is giving universal satisfaction. At the time he sent it I gave him \$5.00 for the idea, and I think he is now entitled to about two more fives, or \$10.00 more, which we place to his credit. And we hereby take pleasure in telling the friends mentioned, that the above sums are placed to their credit, awaiting their order.

Now, I hope none of the friends will criticize my method of purchasing inventions. It seems to me a duty, and I enjoy doing it. Very likely I am notional and peculiar about new inventions; but I have so many times paid money for things that were used for only a short time, or never used at all, that I begin to feel as if I did not want to offer very much for any thing again, until it seems to me to stand the test of months and years of daily use.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APRIL 1, 1887.

Be it known unto you all, and to all the people of Israel, that by the name of Jesus Christ of Nazareth, whom ye crucified, whom God raised from the dead, even by him doth this man stand here before you whole. Acts 3: 16.

THE number of our subscribers up to date is 6965, a gain of 228 within the last month. Many thanks.

"THE PRODUCTION OF COMB HONEY."

THE above is the title of a little book of 45 pages, by W. Z. Hutchinson. It is written in friend H.'s happiest style, and sums up the whole matter of his method of getting comb honey, by obliging the bees to build worker comb in the brood-frames while they are storing honey in the sections, said sections being filled with foundation. The principle consists in contracting the size of the brood-nest so as to force bees into the sections. The queen is kept below by the queen-excluding honey-boards. By much the best way of contracting the brood-chamber is by means of Heddon's half-depth brood-chambers. The brood-nest is then contracted in size, but at the same time there is brood right under all of the sections. The result is, having all the honey above in marketable shape, and all the brood and pollen below. It is, in fact, much the same as the L. frame, with sealed honey in the upper half and brood and pollen in the lower half. The two halves are capable of being separated. We can mail the book to any address for 25 cts.; 10 for \$2.00.

OUR FRIEND THOMAS HORN.

AS claims have pretty nearly stopped coming in, we have decided to wind the matter up and close the books, it having been eight weeks since we first asked to have them sent in. Eighty-five persons have reported, and the total amount of money now claimed is about \$438.62. As the number of individuals is so large, and the amounts of money are mostly so small, I have decided to forward all letters to friend Horn, keeping for future reference the addresses of the parties, and the amount of money claimed. The greater part of the claims are for money sent, for which nothing was ever received. There are, however, a few, and some of them tolerably large amounts, where the order was partially filled; but we hope that friend Horn and the purchaser can agree on what amount is still due. After having agreed, friend Horn is to send his note, payable in two years, or as much sooner as he can make it. He then proposes to take up these notes as speedily as possible. In case there can not be an agreement in regard to the amount due, I would suggest letting some disinterested third party decide it. As fast as Mr. Horn's creditors are satisfied, I should like to have them report directly to me, that we may publish their names for Mr. Horn's encouragement.

PROTECTING SECTIONS OF HONEY IN STOUT MANILLA OR CARDBOARD CASES.

OUR enterprising friend, H. R. Wright, of Albany, N. Y., the man who has pushed the ten-cent package of comb honey so energetically, mails us a sample case, or carton, made of very heavy stout manilla paper, to be slipped over the section as soon as it is taken from the hive. To allow the purchaser to see the honey, an opening two inches in diameter is cut through the center of each side of the box. This paper case is stout enough to hold the section tightly together, thus entirely preventing the corners coming apart in shipping, or when pulled from the case. Friend Wright says it also obviates the necessity of scraping off the propolis, for the paper case entirely covers it, and this case need never be removed until the honey is taken out of its covering, and put on the table. The envelope also covers up all vacant spaces and cells, and protects from leakage and breakage. It makes the sections look all exactly alike, covers up all soils and stains, makes the packages neat, clean, and uniform in appearance, and yet with all these advantages it costs only half a cent for each pound of honey. Friend Wright proposes to furnish these envelopes at cost, and thinks it will be the means of increasing the sale of honey a hundred fold. We presume samples are furnished free on application, although friend Wright does not say so in his circular.

AN ENCOURAGING FEATURE FOR SEED-GROWERS AND OTHERS.

THERE has been so much lamentation over the low prices offered for almost all rural products that it is a little bit pleasant to talk about advance in prices. Last season, after we had put in all the peas we needed for market, I took all that remained in stock after orders had ceased coming, and sowed them for the purpose of raising seed. They did finely in the fall of the year, and we raised a lot of seed, apparently as nice as that purchased from our seedsmen. One patch of Stratagem was, by neglect, never gathered. One reason why we did not take the time to do it was, that I concluded I could purchase what seed I needed, almost as cheaply as I could fuss to put up two or three bushels. It now transpires that the Stratagem, American Wonder, and Yorkshire Hero, are wanted everywhere; and it is a question whether some of them can be found at any price. The same is true of the best kinds of sweet corn, Golden-wax beans, and many other of the new leading vegetables. The grower who last year put in a good lot of something that he knew was good, has now the opportunity of securing a price that will pay him handsomely. We find this state of affairs constantly occurring. One who has a nice crop in stock of a really good thing, every little while finds a scarcity in the market, and then he receives his reward. It is a good deal so with honey. It is expensive to keep many things over, waiting for better prices, and sometimes it is a little dangerous; but the prudent man remembers past experiences, and prepares himself to meet emergencies.

CONVENTION NOTICES.

The bee-keepers of Wisconsin will hold a convention at Hingham, Sheboygan Co., May 5, 1887. MRS. H. HILLS.

The semi-annual meeting of the Southern Illinois Bee-keepers' Association will meet in the Court-house in Benton, Franklin Co., Ill., April 30, 1887, at 10 A.M. All are invited. F. H. KENNEDY, Sec.

CIRCULARS RECEIVED.

The following have sent us their circulars since our last issue:

- S. H. Blosser, Dayton, Va., an 8-page list of apianian supplies.
- Charles F. Uhl, Millersburg, O., a 4-page circular of bees and queens.
- Simon P. Roddy, Mechanicsville, Md., a 2-page list of queens and bees.
- Mrs. Oliver Codd, Sherburne, N. Y., a 6-page circular of bees and queens.
- S. C. Perry, Portland, Ionia Co., Mich., a 6-page price list of bees and queens.
- S. Valentine & Sons, Hagerstown, Md., a 34-page list of apianian supplies.
- E. H. Ricker & Co., Elgin, Ill., a 6 page (large size) list of nursery supplies.
- Robison & Gillette, Willoughby, O., a 4-page (large size) circular of berry-baskets.
- E. W. Pitzer, Hillsdale, Ia., a 10-page circular of bees, poultry, hives, sections, etc.
- Hayward & Stratton, East Pepperell, Mass., a 10-page circular of apianian supplies.
- Martin & Macy, North Manchester, Ind., a 24-page circular of bee-supplies and poultry.
- Jos. W. Newlove, Columbus, O., a 12-page circular of apianian supplies and small fruits.
- Charles D. Duvall, Spencerville, Md., an 18-page circular of bees and high-class poultry.
- John A. Thorton, Lima, Ill., a 6-page price list of bees, queens, poultry, and a few apianian supplies.
- G. H. Knickerbocker, Pine Plains, N. Y., a 4-page (large size) circular of bees and queens. The strain of bees which Mr. K. advertises are those formerly owned by L. C. Root.
- Charles Stewart, Sammonsville, N. Y., an advertising card of comb foundation, extractors, smokers, etc. Mr. S. uses one of J. H. Martin's chrono cards, which we noticed before.
- J. B. Mason & Sons, Mechanic Falls, Me., a 24-page (large size) catalogue of bee-keepers' supplies. Messrs. M. & Sons are the editors of the "Bee-keepers' Advance," which we have before mentioned in our columns.
- T. G. Newman & Son, Chicago, Ill., a 34-page circular of every thing necessary for the apianian. Mr. Newman advertises as usual a large collection of supplies, and we are always glad to recommend him to our bee-friends.
- Joseph Nysewander, Des Moines, Iowa, a 30-page circular of apianian supplies. We notice that Mr. N. has recently bought out Mr. J. M. Shuck, so that all needing reversible hives and reversible supers, as formerly made by Mr. S., will now obtain them of our friend Mr. Nysewander.
- George Neighbour & Sons, 149 Regent St., Holborn, London, England, send us a 70-page (large size) circular of every thing needful for the apianian. As usual with price lists received from England, we notice a very large collection of hives. Besides hives and implements constructed in England, we notice that Messrs. N. & Sons offer for sale those made after the American patterns. A perusal of this circular will give one a pretty fair idea of the status of bee-keeping in England.

SPECIAL NOTICES.

WANTED, JANUARY AND FEBRUARY NUMBERS OF THIS YEAR.

UNTIL further notice we will pay 10 cts. each for either of the above numbers; and those of our subscribers who failed to get them, and who still want them, may have them at the same price; that is, we will pay 10 cts. each and sell for 10 cts. each, for the sake of accommodation, paying postage besides, ourselves.

ALSIKE CLOVER.

THERE has been such a demand for seed of the above clover, that the market is practically exhausted. Our prices for the present will be the same as before the last decline; viz., \$8.00 per bushel; \$4.25 per half-bushel; \$2.25 per peck, or 18 cts. per lb. By mail, 18 cts. per lb. for bag and postage. Now, in giving the above prices we are obliged to say that there may be a still further advance before your order reaches us. While this advance in price makes it hard for those who are obliged to buy, it is a good thing for those who have provided themselves with a stock of seed to meet the emergency.

THE NEW JAPANESE BUCKWHEAT.

THE demand has been so much greater than my expectations, that I have sold not only the one bushel first purchased, but five additional bushels; and by taking ten bushels more I have got it at a price so I can furnish it at the following reduction; \$6.00 per bushel; \$1.75 per peck; per half peck, \$1.00; 1 lb., 25 cts.; ¼ lb., 8 cts. If wanted by mail, add 5 cts. per ¼ lb., or 18 cts. per whole pound, for bag and postage. For all we know in regard to the new grain, see March No., page 167. The fact that it is so much larger in size is of itself quite an inducement to give it at least a trial on a small scale.

KIND WORDS FROM OUR CUSTOMERS.

PACKING SO WELL.

The seeds you sent me came up. Soon after, I sent you an order for 10 Simplicity bee-hives. Please accept thanks for packing my goods so well. Trinity, Tex., Mar. 6, 1887. WALTER A. MARTIN

A PERFECT BEAUTY.

I received the goods you sent, all in good order. Your method of packing is efficient. The queen you sent is a perfect beauty. She was on the way six days, and there wasn't a single dead bee in the cage when received. Thanks for promptness. Derden, Tex. J. OFFUTT.

TEN STANDS FROM ONE POUND OF BEES RECEIVED LAST MAY.

I received those sections to-day, which you shipped the 21st. They are all right. I am well pleased with them. They came in nice order. I have not examined my bees for some time; they were all right then. I have ten stands from the pound of bees and queen I received from you one year ago last May. R. P. WARWICK.

Dayton, Tipp. Co., Ind., Feb. 28, 1887.

PERFECT SATISFACTION.

Those sections I got of you gave perfect satisfaction in every way. I order all my goods through Mr. Elias Cole, and have for years past. I ordered 1000 sections, 4 3/4 by 6 inches, and I am perfectly satisfied. I will call on you again. I have 69 swarms of bees. I obtained 1200 lbs. of comb honey last season. I have lost but one swarm of bees in three winters. E. DIFANEY.

Norton, Ohio, March 14, 1887.

WORTH A DOZEN OF THE OLD ONES.

The fdn. mill arrived here all right, March 19th. Express charges were \$1.25. I am well pleased with it, and also your promptness in filling the order. I was in a hurry for the mill, that is why I ordered it by express. I had counted the cost before sending for it. The mill is worth a dozen like the old one, in my estimation. I have made over 50 lbs. of fdn. on the new since it came, and have not had as much trouble with it as I did in making one pound on the old one. FRANK L. ROWLEY.

Sycamore, Ill., March 21, 1887.

200 COLONIES OF Choice Italian & Albino Bees

FOR SALE AT GREATLY REDUCED PRICES.

Also a full line of Bee-keepers' Supplies. **COMB FOUNDATION** from choice select yellow beeswax a specialty, at very low rates, both wholesale and retail.

Do not fail to send for my 27th Annual Catalogue before purchasing.

Address
3tfdb

WM. W. CARY,
COLERAINE, MASS.

Mention this paper when writing.

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.

—SEND FOR MY NEW PRICE LIST.—

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.
4tfdb

BROOD FOUNDATION, 35 cts. per lb. No thin fdn. for sale. W. T. LYONS, Decherd, Frank. Co., Tenn.

100,000 V-groove One-piece Sections, Linn and Buckeye. Several sizes; will sell at bottom prices. Send for price-list of apiarian supplies and sections. Samples free. J. B. MURRAY, Ada, Hardin Co., O.

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price 1 1/2 cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

- 8 13 rolls, 67 sq. ft. each: 1 each of 66, 66, 64, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
- 12 34 rolls of 100 sq. ft. each: 3 of 102 sq. ft.; 4 of 98, 2 of 97, and 1 each of 95, 92, 44, 43, and 28 sq. ft.
- 14 1 roll each of 26, 14, and 5 sq. ft.
- 16 10 rolls of 133 sq. ft.; and 1 each of 132, 131, 131, 128, 128, 105, 55, and 12 sq. ft.
- 18 4 rolls of 150 sq. ft.; 6 of 147 sq. ft., and 1 each of 153, 148, 146, 145, 144, 130, 117, 116, 69, 45, 37, 27, 24, and 24 sq. ft.
- 20 1 roll each of 164, 105, and 31 sq. ft.
- 22 1 roll each of 101, 73, 73, 55, 45, 46, and 16 sq. ft.
- 24 38 rolls of 200 sq. ft. each, and 1 each of 100, 96, 92, 90, 66, 66, 66, 60, 52, 50, 50, 44, 36, 32, 30, 28, 24, 24, 24, 20, 20, 12, 12, 11, 8, 8, 6, and 6 sq. ft.
- 26 112 rolls of 216 sq. ft. each, and 1 each of 227, 215, 204, 201, 200, 199, 195, 93, 54, 54, 32, 32, 30, 10, and 7 sq. ft.
- 28 69 rolls of 233; 10 of 224; 4 of 223 sq. ft., and 1 each of 257, 49, and 47 sq. ft.
- 30 16 rolls of 250 sq. ft., and 1 each of 107, 72, 62, 52, 50, 50, 27, 25, 22, 20, 14, 11, 10, 7, and 5 sq. ft.
- 32 11 rolls of 266, 2 of 256 sq. ft., and one each of 275, 141, 99, 96, 95, 84, 80, 67, 13, and 8 sq. ft.
- 34 25 rolls of 283 sq. ft., and 1 each of 142, 142, 133, 130, 93, 88, 74, 71, 68, 54, 48, 37, 27, 25, 17, and 14 sq. ft.
- 36 14 rolls of 300 sq. ft., and 1 each of 288, 192, 147, 120, 102, 51, 45, 36, 36, 30, 28, 24, 33, 33, 24, 15, 13, 12, and 9 sq. ft.
- 38 24 rolls of 316 sq. ft., and 1 each of 633, 300, 47, and 9 sq. ft.
- 40 1 roll each of 127 and 27 sq. ft.
- 42 1 roll of 17 sq. ft.
- 46 1 roll of 88 sq. ft.

A. I. ROOT, Medina, O.

DO NOT MISS THIS CHANCE TO GET ITALIAN QUEENS AND BEES

And **EGGS FOR HATCHING** from seven varieties of **High-Class Poultry**. Choice breeding stock, and prices low. Send for Circular and Price List.

CHAS. D. DUVALL,
7tfdb Spencerville, Mont. Co., Md.

EGGS from California bronze turkeys, at \$1.50 per sitting of 9. My tom weights 40 lbs. Italian bees and queens in any quantity.

7tfdb GEO. W. BAKER, Milton, Wayne Co., Ind.

ARTHUR TODD, 1910 GERMANTOWN AVE.
PHILADELPHIA, PA.

Dadant Brood Foundation, 40c; for wiring, 45c; thin surplus, 50c. Extra thin, 60c. **BEES, QUEENS, SECTIONS, SUPPLIES GENERALLY.** 5d

70 Swarms of Bees for Sale

In new 8-frame L. hives, all on wired frames of fdn. 40 swarms of pure Italians at \$5.00 per swarm; 30 swarms hybrids at \$4.50. Queens one and two years old. Bees will be shipped as soon as weather will permit. Safe arrival guaranteed. Sickness compels me to sell again. Send money in registered letter or express money order on American Express. First come, first served. **J. R. REED,**
78d Milford, Jeff. Co., Wis.

60 Colonies of Italian Bees For Sale.

Italians, \$5.00; hybrids, \$4.00, in Langstroth 10-frame hives. Also brood-frames filled with comb, and brood frames with separators. Address
7d JOHN GRANT, BATAVIA, OHIO.

500 FIRST-CLASS HONEY AND WAX EXTRACTORS, CHEAP.

789d E. T. LEWIS & CO., Toledo, Ohio.



[ARISE to say to the readers of GLEANINGS that

Doolittle

has concluded to sell
—BEEES and QUEENS—
during **1887** at the
following prices:

One colony bees.....	\$ 7 00
Five " " " " " "	30 00
Ten " " " " " "	50 00
One untested queen.....	1 00
Three " " " " " "	2 00
1 untested queen reared by nat'l swarming.....	1 50
Three ditto.....	3 00
1 tested queen.....	2 00
3 " " " " " "	4 00
1 tested queen reared by natural swarming.....	3 00
3 ditto.....	6 00

Tested queens, 1886 rearing, each..... 4 00
Extra selected, 2 years old, each..... 10 00
Circular free, giving full particulars regarding the bees, and each class of queens.

Address **G. M. DOOLITTLE,**
BORODINO, Onon. Co., N. Y.

MY 19TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.

H. H. BROWN, Light Street, Col. Co., Pa.

SECTIONS.

I will sell nice white basswood sections for \$3.00 per 1000, smooth on both sides, 4-piece all dovetailed, 4¼x4¼. Send for sample.

7tfdb **W. S. WRIGHT, Battle Creek, Mich.**

FOR PRICES OF

Berry-Baskets and Crates, Send to

MELLINGER, HARROLD & GROVE, Columbiana, O.

SEND FOR SAMPLE BASKET FREE.

We also sell baskets in flat.

7-10db

SUPPLIES VERY LOW.

Very nice brood foundation, 38 cts. per lb. Bees in 10-frame L. hives, plenty of honey, straight combs, with queen, \$5.00. Novice' extractor, well made, \$5.50. All supplies correspondingly low.

E. Y. PERKINS,
7tfdb **Jefferson, Greene Co., Iowa.**

100 Tested Queens from Imported Mother,

NOV., 1886, REARING,

At \$1.00 each, during the month of April. Un-

tested, \$9.00 a dozen. **J. W. K. SHAW & CO.,**

Money-Order Office, **NEW IBERIA,**

78d **Iberia Par., La.**

NEW POULTRY and FRUIT BOOKS

Free

The Publishers of **Farm and Home**, a semi-monthly Agricultural and Family Journal published at Springfield, Mass., make the following unprecedented trial offer, in order to introduce **Farm and Home** into thousands of new homes, being confident that once a subscriber you will not do without it.

The regular price of **Farm and Home** is 50 cents a year, but on receipt of **30 cents** in stamps or money we will send **Farm and Home** the rest of this year, and in addition will send **free** and **postpaid** two new and valuable books, the "**Practical Poultry Grower**" and the "**Practical Fruit Grower**." These books will be worth ten times the money paid to any one interested in poultry or fruit.

The Practical Poultry Grower

is the **Most Complete, Most Practical** book of the kind ever published.

A FEW OF ITS MANY FEATURES:
GENERAL CARE AND MANAGEMENT, Directions for having early chicks, etc.

ARTIFICIAL POULTRY RAISING is fully treated by **JAMES RANKIN**, whose 16 years' experience in the business make him an authority. Tells how to construct home-made incubators.

FEEDING POULTRY for Eggs, Meat and breeding.

WINTER CARE. This chapter tells how to make hens lay in winter as well as in summer.

PRESERVING EGGS. This chapter alone will enable you to make money by holding eggs for a higher market.

POULTRY ARCHITECTURE. Illustrations of new and practical poultry houses. Composed entirely of **NEW AND PRACTICAL MATTER** from actual experience. This chapter alone contains more valuable information, plans, etc., than several of the treatises of poultry architecture that are sold at 25 or 50 cents each.

**A NEW BOOK,
Offered Only by Us.**



The Practical Fruit Grower

is a **Standard Work** by a **Standard Authority**, being written by **PROF. S. T. MAYNARD**, of the Massachusetts Agricultural College. It contains the results of years of **successful fruit growing**. An **INVALUABLE** AID TO EVERY ONE interested in fruit culture.

SPECIAL 15-DAY OFFER.

"Money Crops" FREE! To every one accepting the above offer within 15 days.

we will send in addition **"MONEY CROPS—HOW TO GROW AND HOW**

TO SELL THEM," a book of great value to every gardener and Farmer. Given

concise, plain, practical, common-sense and detailed directions for

planting, cultivating, harvesting and marketing nearly 100 Money Crops.

Under this offer every one sending **30 cents** within **15 days** of the receipt of this paper, will receive **Farm**

and **Home** twice each month for the rest of the year **1887**, and

3 GOOD FARM BOOKS FREE!

MONEY REFUNDED IF NOT FOUND JUST AS REPRESENTED.

Farm and Home is acknowledged by all who know its value to be the **best paper of its class**, If you are interested in the **Farm and Garden, Live Stock, Fruit, Poultry, Bees, Plants and Flowers**, the practical hints in any one number will be worth to you more than the money required.

It is as good for the **WEST** as the East, being **National in character and circulation.**

AN EXTRA SET OF BOOKS and copy of **Farm and Home** given for a club of **5 at 30 cents each.**

Address, mentioning this paper,

THE PHELPS PUBLISHING CO.,

Remit with Postage Stamps, Postal Notes, or otherwise.

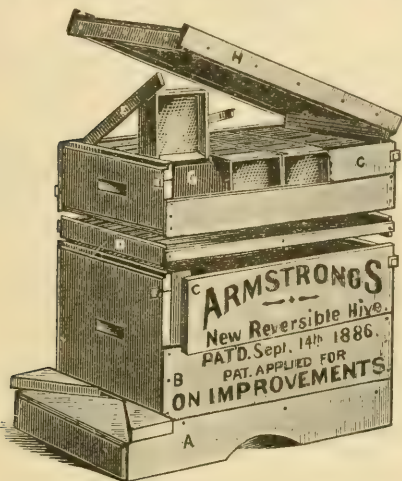
Springfield, Mass

The three books contain nearly **400 pages**, or as many as other books that sell for **\$1 each**. Such an opportunity to obtain good reading has never before been offered.

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
 — FOR PRICES ON —

BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers
New Factory. Low Prices. Good Work.
 24-11db

— **ARMSTRONG'S** —



NEW REVERSIBLE HIVE.

The cheapest, simplest, and most practical hive ever offered to the public. H. D. Cutting, of Clinton, Mich., says: "Let me congratulate you on having such a good hive. Your reversible-section case is perfection itself." Sample hive complete, with paint, \$2.50. Send your name and address, plainly written on a postal card, and receive our 32-page illustrated catalogue free. Address

5tfdb

E. S. ARMSTRONG, Jerseyville, Ills.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-hangers for a 2 15-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Six 18-in. adjustable drop-hangers for a 2 7-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Eight 30-in. iron pulleys, 10-in. face, for a 2 7-16-in. shaft. Cost \$8.00 each; will sell for \$4.00.

These are just as good as new, and a bargain to the man who needs them.

A. I. ROOT, Medina, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

MUTH'S

HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**
 CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers."
 1tfdb

Write to **W. H. COOK, * Clintonville, * Wis.,**
 FOR PRICES ON

Bee-Hives, Sections, & Frames

As I am located where an abundance of basswood and pine grows, I feel safe to say I can furnish my goods as cheap as they can be produced.

A. I. Root Chaff Hive a Specialty.

All goods warranted. For reference, apply to the Bank of Clintonville, Wis. 4tfdb

The "Gilt Edge" Apiary offers Italian queens from imp. mother; untested, in April and May, \$1.25; untd, in June and after, \$1.00. Tested queens double above price.
A. P. STAIR,
 Whitney, St. Clair Co., Ala.
 5-10db

200 COLONIES OF ITALIAN BEES FOR SALE!

50 colonies on special terms. Send for prices.
S. D. McLEAN, BOX 190, COLUMBIA, TENN.
 567d

HERE WE ARE AGAIN FOR 1887. For Sale! Italian Queens

Bred of imported mothers. Bees by the pound, brood, nucleus, and full colonies. I never had foul brood. Send for catalogue. **C. F. HILL,**
 7tfdb **Millersburg, Holmes Co., Ohio.**

700 LBS. BEES During first half of May I will sell these at \$1.25 per lb. Also untested Italian queens, bred from imported mother, to go with bees, at \$1.25 each. Cash must accompany orders, and should be sent before Apr. 20. Ref., 1st Nat. Bank here. 789d **E. Burke, Vincennes, Ind.**

RUBBER STAMPS

DATING, ADDRESSING, BUSINESS, LETTER HEADS, ETC.



No 1.



No. 3.



No. 2.

Address only, like No. 1, \$1.50; with business card, like No. 2, \$2.00; with movable months and figures for dating, like No. 3, \$3.00. Full outfit included—pads, ink, box, etc. Sent by mail postpaid. Without ink and pads 50 cts. less.

Put your stamp on every card, letter, paper, book, or anything else that you may send out by mail or express and you will save your-

self and all who do business with you a "world of trouble." I know, you see.

We have those suitable for druggists, grocery-men, hardware dealers, dentists, etc. Send for circular.
A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange eggs from four yards, pure-bred prize-winning Plymouth Rocks, for alsike clover seed. Eggs, \$2.00 for 13, or \$3.00 for 30.
3-8db B. D. SIDWELL,
Flushing, Belmont Co., Ohio.

EGGs for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free.
4tfdb A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange nursery stock of all kinds for bees in spring. Terms on application, stating what you want.
4tfdb D. G. EDMISTON,
Adrian, Mich.

WANTED.—To exchange 40 acres of good land, $\frac{3}{4}$ improved, frame house and barn, good spring, $\frac{3}{4}$ mile from a thriving temperance town; good schools, church, etc., and situated on the great basswood belt of Wisconsin, for property in Arkansas, small or large. Apiary if desired. Correspondence solicited.
5tfdb M. A. GILL,
Star, Vernon Co., Wis.

WANTED.—To exchange, any amount of Wyandotte and Brown Leghorn eggs for grapevines, fdn., plum-trees, or any thing useful.
6-7d BENJ. ZURCHES, Apple Creek, Wayne Co., O.

WANTED.—To exchange for sewing-machine, Brown Leghorn pullets, 75c; cockerels, \$1.00; eggs, 75c per 13; 26, \$1.00. Warranted pure.
6-7d MRS. ALICE BRIGHT, Mazeppa, Minn.

WANTED.—To exchange eggs from pure-bred Langshan fowls, for beeswax, tested Italian queens, good revolver, or any thing useful.
6d E. P. ALDREDGE, Franklin Square, Col. Co., O.

WANTED.—To exchange a new Hitchcock's Bible, cost \$9.75; Sharpless, Crescent, Monarch, and Wilson Strawberry-plants, for pure Italian queens, also pair of Plymouth Rocks.
6d S. J. ADAMS,
Cub Creek, Charlotte Co., Va.

WANTED.—To exchange forty thousand extra-fine Cuthbert, Gregg, and 13 other new varieties red and black raspberry plants, for comb or extracted honey. The honey is to be delivered next fall. Write for terms of exchange to
6-7-8d E. T. FLANAGAN, box 995,
Belleville, St. Clair Co., Ill.

WANTED.—To exchange for extracted white clover or basswood honey, or bees, a new foot-power saw. Write for particulars.
7tfdb W. S. WRIGHT, Battle Creek, Mich.

WHAT am I offered in exchange for a high-scoring Wyandotte cockerel, of the "Poquanock" strain?
W. H. OSBORNE, Chardon, Ohio.

WANTED.—To exchange Italian bees or bronze turkey-eggs for a Canary bird singer and cage.
7d GEO. W. BAKER, Milton, Wayne Co., Ind.

WANTED.—To exchange bees by the pound or full colonies, queens, comb fdn., eggs for hatching from L. Brahmas and S. S. Hamburgs, for sections, Jersey cow, American Merino sheep, or offers.
6-7-8-9d J. P. STERRITT, Sheakleyville,
Mercer, Co., Pa.

WANTED.—To exchange for beeswax, one foot-power saw. Also wanted, a good Mexican saddle and bridle, for sections or other supplies.
6-7d C. A. GRAVES, Birmingham, Ohio.

WANTED.—To exchange a Wilson's bone-mill, new, O. K., for 4 Italian dollar queens in July.
7d A. MOTTAZ, Ottawa, Ill.

WANTED.—To exchange 80 colonies of bees in chaff and Simp. hives, of 10 wired fdn. frames each, for some good land near by. Apply at once.
7-8d JAS. H. ANDRUS, Almont, Mich.

WANTED.—To exchange Wyandotte eggs, pure ground bones and shells, and Gregg raspberry-plants, for comb foundation.
7-8-9d A. A. FRADENBURG, Port Washington, O.

WANTED.—To exchange section boxes, 4-piece dovetailed, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$, price \$4.00 per 1000, for a Planet Jr. seed-drill and cultivator, or a comb fdn. mill (a 10-inch mill preferred).
7d F. T. HALL, Lochiel, Dunn Co., Wis.

WANTED.—To exchange metal cornered, wired frames (Simp.), ready to hang in the hive, filled with foundation, for Italian bees and queens.
7-8d R. B. BONEAR, Cherry Ridge, Pa.

WANTED.—To exchange Barnes foot-power saws and bees, for steam-engine, honey, or beeswax.
7-12db C. W. & A. H. K. BLOOD, So. Quincy, Mass.

WANTED.—To exchange Cuthbert raspberry roots for a double-barrel 12-gauge breech-loading shot-gun, or a female ferret, or beeswax.
M. ISBELL, Norwich, N. Y.

WANTED.—A young man of some experience, to take charge of an apiary of sixty colonies of bees, either on shares or for wages. Address
7d J. P. CONNELL, Box 132, Hillsboro, Texas.

Wanted. A good bee-keeper to take charge of my apiary of 12 colonies, on shares.
ROBERT BLACKLOCK, Killgore, Carter Co., Ky.

WANTED.—Competent assistant in apiary for summer.
DR. THOM, Streetsville, Can. 6-7d

WANTED.—A steady man to work small apiary and garden. Correspond with J. T. DUEWARD, Seneca, Wis.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet 't is often times quite an accommodation to those who can not afford higher-priced ones.

I have about 30 hybrid queens, reared mostly from imported queens, but have proven hybrids. These I will sell, during April, at 50 cts. each; May, 37 $\frac{1}{2}$ cts. each. June and after, 25 cts. each. June and after, per half-dozen, \$1.25. Per dozen, \$2.25; per two dozen, \$4.00.

GEO. W. BAKER, Milton, Wayne Co., Ind.

I shall remove 6 young mismated Italian queens, about the last of April. Who wants them at 50 cts. each?
MISS A. M. TAYLOR,
Box 77. Mulberry Grove, Bond Co., Ill.

Twenty-five pure Italian queens, mated with black drones, at 50 cts. apiece, now. Safe arrival guaranteed. Three black queens at 25 cts. apiece.
S. H. COLWICK, Norse, Bosque Co., Texas.

A few good hybrid queens, in April and May, at 50c each.
PELHAM & WILLIAMS, Maysville, Ky.

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We will send free by mail one of our latest improved drone and queen traps to each yearly subscriber for the *AMERICAN APICULTURIST*. Price \$1.00 per annum. Sample copies free. Send the \$1.00 in common letter at our risk.

Address *AMERICAN APICULTURIST*,
7tfdb Wenham, Mass.

TESTED QUEENS, in April and May, at \$2.50 each.
PELHAM & WILLIAMS, Maysville, Ky.

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EGGS from California bronze turkeys, at \$1.50 per sitting of 9. My tom weighs 40 lbs. Italian bees and queens in any quantity.

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In lots to suit purchasers. Packed in Simplicity hives, at \$8.00 per hive. Three-banded bees, strong and in good order. Apply to C. W. H. EICKE, 8d **WEST MONTEREY, CLARION CO., PA.**

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Dunham Brood Fdn., 40c. per lb.; extra thin Vandervort Fdn., 45c. per lb. Wax made into fdn. for 10 and 20c. per lb. 10% discount on all orders received before the 15th of April.

SAMPLES FREE.

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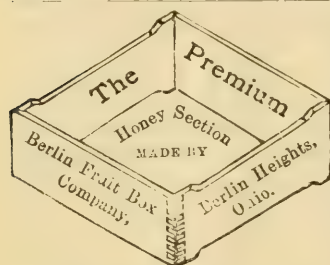
100 3-frame nucleus colonies of hybrid bees, with queens, each \$2 50
Two-story Simplicity hives (complete) each 1 50
Chaff hives (have been used some) each 3 00
Highly bred hybrid queens, each 1 00
4 1/2 sections (V groove) per M 5 00
The photo of my apiary given as a premium on supplies purchased to the amount of \$5.00, cash orders. Will exchange nuclei colonies or ext'd honey for apiarian supplies, if new.
7tfdb J. M. YOUNG, Rock Bluffs, Nebraska.

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Near your home in Western Pennsylvania and in the oil-producing district of Butler Co.

SIMPLICITY, PORTICO, AND THREE STYLES OF CHAFF HIVES.

Send for price list, if it is to your interest to deal with me.
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One - Piece Sections and Wood Separators, a specialty. Our No. 2 sections (\$2.50 per M.) have no equal for the price. Berry-baskets and crates also, a specialty. For catalogue, address as in the cut. 6-7-8d

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OLIVER FOSTER, Mt. Vernon, Ann Co., Ia.

CHEAP! ITALIAN QUEENS, COLONIES, BEES BY THE LB., NUCLEI, AND COMB FOUNDATION.

Send for Circular. JAS. McNEILL, Hudson, N. Y. 7tfdb

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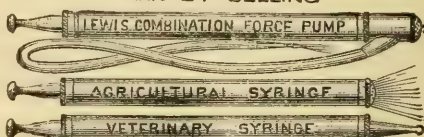
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ITALIAN BEES and QUEENS.

Full colonies, in April and May, \$7.00 (Simp. wired frames, combs built on fdm). Bees, per lb., \$1.00. Per 1/4 lb., 60 cts. Tested queens, \$2.00. Untested, \$1.25. Mismatched queens, 50 cts. All queens reared from imported mother. MISS A. M. TAYLOR, BOX 77. Mulberry Grove, Bond Co., Ills.
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ONE PIECE V-GROOVE SECTIONS, BEE-FEEDERS, WIRE NAILS, PERFORATED ZINC.

Scrub Brushes, a friend for the ladies, 65 cents each; \$4.00 per dozen. Alsike clover seed, \$7.50 per bushel; \$2.00 per peck; 15 cents per pound.

B. J. MILLER & CO.,

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THIS NEW ELASTIC TRUSS

Has a pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person nia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.
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Eggs for Hatching.

From pure-bred S. C. and R. C. B. Leghorns, Black Hamburgs, and P. Rocks. Per sitting of 13 eggs, \$1.00. Two or more sittings, at one time, each 75 cts. Carefully packed in baskets, and express charges paid to destination anywhere in N. Y. State. Also 100 colonies of Italian bees for sale. Breeding and tested queens now. Untested queens, after May 15th. Write for prices.
7-8d F. D. WOOLVER, Muncieville, N. Y.

PURE P. ROCK EGGS, \$1.00 PER 13.
7-8d R. W. TURNER, Medina, Ohio.

3000 LBS. FIRST-CLASS FOUNDATION, CHEAP.
7-8d E. T. LEWIS & CO., Toledo, Ohio.

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—MANUFACTURERS OF—

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White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples free.
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— 1887 —

CIRCULAR

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DOWAGIAC, MICH.

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Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 221fdb

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HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey*.—The demand for honey is quite fair for good qualities, either comb or extracted. We quote:

Choice white 1-lb. sections, 11@12
" " 2-lb. " 10@11

Dark, not wanted.

Extracted, white, in bbls. and kegs, 6@6½
" " in tin pails, 6½@7
" dark, in bbls, 4@4½

Beeswax, 25c. A. V. BISHOP,
Mar. 28, 1887. 142 W. Water St.

CHICAGO.—*Honey*.—Season is quite far advanced for comb honey, and sales are in a small way. Prices are easier than on last quotations, still we try to get 12@13c for the fancy lots, and there is not much of that grade. Extracted, about the same as last quotation. Beeswax, 25c.

R. A. BURNETT,
Apr. 9, 1887. 161 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey*.—The market has been a little more active of late and there has been a fair demand for best 1-lb. sections of white honey at 11@12. Second quality continues dull at 9@10. Extracted, 5@6. Beeswax, 25c.

A. C. KENDEL,
Apr. 9, 1887. 115 Ontario St., Cleveland, O.

COLUMBUS.—*Honey*.—White clover in comb in good demand at 14@15c. California, none in market. Extracted, white clover, 10@12c. Good white-clover honey is scarce in this market and sells readily at quotations.

EARLE CLICKINGER,
Apr. 9, 1887. 117 South 4th St.

CINCINNATI.—*Honey*.—No change since our last quotations. Demand for table honey is fair for the time being, and demand from manufacturers has improved. We quote 11@14c for choice comb honey in the jobbing way, and 3@7 for extracted honey, according to quality, on a rival.

Beeswax is in fair demand, and brings 20@23c on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
Apr. 7, 1887. Cincinnati, Ohio.

NEW YORK.—*Honey*.—The demand for comb honey continues fair, and there is no material change in the market.

THURBER, WHYLAND & CO.,
Apr. 11, 1887. New York.

ST. LOUIS.—*Honey*.—We quote you honey still dull. Choice white-clover 1-lb. sections, 10c, and moving slow. Dark 9c, and broken and out of condition, 6@8c. Extracted clover, cans, 5; bbls., 4; Southern, 3@3½. Beeswax, as runs, 21@22; selected, 25.

W. B. WESTCOTT & CO.,
Apr. 11, 1887. 108 and 110 Market St.

DETROIT.—*Honey*.—Best grades of comb honey have advanced since last quotations. Best white-clover in one pound sections 11@12 cts.

M. H. HUNT,
Beeswax, 23c. Bell Branch, Mich.
Apr. 11, 1887.

PHILADELPHIA.—*Honey*.—Honey nominally as last, but no movement whatever, and no demand.

Beeswax is quiet but steady; we quote: Yellow, choice, 22@23; dark, inferior, 20@21; white, 27@28.

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500 FRAMES OF BROOD

Two-thirds full, well covered with bees (Italian), no queen, in two-frame nucleus hives; just the thing for queen-rearing, \$1 each frame, after June 1st.

Twenty last-years' tested Italian queens, \$2 each. 8-9-10d

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For Sale. Full Colonies of Italian Bees, 2, 3, and 4 Frame Nuclei.

Tested queens before June 1st, \$1.50 each; after, \$1.25 each. Untested, before June 15th, \$1.00 each. After that date, single queen, 75 cts.; six for \$4; twelve for \$7.75. Pounds of bees, same price as untested queen.

I. R. COOD, Nappanee, Ind.

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Yes, my American-Albino-Italian, selected queens produce them: **DOOLITTLE** says, "The Reddest I ever saw." I CHALLENGE the world on **BEES**. Send for prices. Specialties—Queens, Nuclei, and Colonies. *Warranted queens*.—A. A. and G. Italians, \$1.00 each; tested, \$2.50. Cyprians, from a Benton imported queen, mated to Albino drones, ¼ more.

5—**ABBOTT L. SWINSON**, 71—65.
8d Goldsboro, Wayne Co., N. C.

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A SPECIALTY.

Sections smooth on both sides, V or nearly square groove, dovetailed ends, or to nail, at \$3.50 per 1000.

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Pure Italian BEES For Sale.

30 COLONIES, AT \$5.00, \$6.00, AND \$7.00 PER COLONY.

In Langstroth frames and latest improved hives, for section boxes or extracted honey.

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8tdb

APRIL 2, 1887.

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Now consists of 195 colonies of choice Italian bees, the progeny of selections of queens from the superior and well-known Dadant strain of imported queens. One hundred colonies of these bees for sale cheap. For prices, etc., see my ad. in March 15th and April 1st GLEANINGS. The 5 per cent discount extended to May 1st.

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BETTER THAN EVER BEFORE.

Send for latest catalogue, with full description.

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Holy-Land Bees and Queens, Cheap.

Full Colonies, Nuclei, and Queens.

SEND FOR CIRCULAR.

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8-13db

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CONTRACTIBLE * BEE - HIVE.

Write for descriptive circular. It will pay

Address **W. H. SHIRLEY**,
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Bees by the pound, Italian Queens, Comb Foundation, Sections, Hives, and all kinds of Bee Supplies at rock-bottom prices. Send for price list, now out.

SMITH & JACKSON, P. O. Box 72,
8d Tilbury Center, Kent Co., Ont., Canada.

SET OF **ENGRAVING TOOLS**, 10 pieces, in lock-box, all for \$3.00. **H. L. STRONG**, Medina, Ohio.



Vol. XV.

APRIL 15, 1887.

No. 8.

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A PRACTICAL QUESTION.

HOW FAR APART SHOULD APIARIES BE LOCATED, SO THAT THE BEES OF ONE LOCALITY MAY NOT INTERFERE WITH THOSE OF ANOTHER?

IF you have only from 10 to 50 colonies of bees you wouldn't give a blue button to know how far bees will work profitably, nor how many can be kept in one apiary for greatest profit.

As you approach the number 100 or more, you will most likely become intensely interested in both these points. I want to say distinctly, in advance, that I have very little knowledge in this direction that is either exact or certain. I don't know how many colonies can be kept most profitably in one apiary, and I don't know any one who does know. It's a sort of "Will o' the wisp" affair, ever eluding your grasp. But it is a subject that *must* be thought about; for although we may not know the limit, we know most surely that there is a limit beyond which every colony added will decrease the total surplus. I would give much to know that limit. Of course, it varies in different places; and when you come to decide for your locality, you can do it only by comparing your crops of different years and then doing some guessing. If, one year, from 100 colonies you got a total crop of 5000 lbs., and another year, equally good, from 130 colonies in the same apiary you get a crop of *more* than 5000 lbs., it is pretty good evidence that more than 100 colonies can be profitably kept in that apiary. But how can you know that the two years were equally good? Ay, there's the rub. It must be largely guessing. Well, suppose you have used your best judgment, and decide that 125 colo-

nies is your limit for greatest profit, and suppose that you have, altogether, 175 colonies, shall you take half to an out apiary or keep your limit of 125 at home, and take away 50? I think I would compromise, and take away perhaps 75; but it is hardly a matter of great consequence.

Now you must decide how far they should be taken. Even if we had exact knowledge about this, there will always be local reasons that will prevent us from following a fixed rule, because there may be a inden grove in a certain range, or some house where we should like to locate, which is a half-mile or so further or nearer than we would otherwise locate. But it may be of some use to talk about the general rule. For the present let us suppose that 3 miles is the distance which bees work from their home. How much interference will there be if a second apiary is planted within 3 miles of the home apiary? If we represent the range of each apiary by a square field measuring 3 miles each way from the apiary, or 6 miles across, the interference will be shown in Fig. 1.

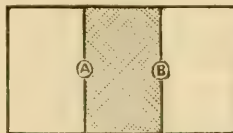


Fig. 1.

that 50 per cent of A's field is also occupied by B; and according to the figure, if we want no interference the two apiaries must be located 6 miles apart.

The square figure does not, however, properly represent the area of bees' flight. As they fly only three miles in any direction, no bee will ever reach

In this case the shaded part in the middle shows the part of the field that is doubled, or occupied by the apiary located at B as well as by the apiary located at A. It is easily seen,

the corners of the square, and the area of flight will be a circle.

Fig. 2 shows the interference to be less with circular than with square fields. If I have made no mistake in figuring, the shaded part in Fig. 2 is 39 per cent of A's field. But is there not still an error? We have thus far considered that the bees occupy a circular field sharply defined by its circumference, the bees spread evenly over this whole surface, being just as plentiful near the circumference as near the center. But do not the bees become more and more scattered as we approach the circumference, so that the further we go from an apiary the fewer bees we shall find? I know that bees seem instinctively to prefer to fly some little distance when going in search of nectar; or, at least, I think I have seen it so stated; but is this not true only to a limited extent? and is not the general rule that, when you go to their utmost limit of flight, you will find the bees very scattering? Another thing is, that the time and strength involved in making these distant flights counts for something, so that, even if the bees were evenly distributed over the field, an acre taken from near the circumference would count for less in the surplus crop than an acre taken nearer the center. I think, however, we are safe in saying both that the bees are more scattering as we approach the circumference, and also that their labors are of less value than when working nearer the center. This, of course, is merely a general statement, and on the supposition that the field is homogeneous throughout, as if it were one unvarying field of clover from center to circumference. Of course, in actual practice there is no such uniformity, for there may be a fine yield from basswoods near the outside, and nothing yielding near the center. But taking the general view, the field may be considered, not as a distinctly defined circle, equally valuable in all its parts, but as a circular field densely occupied near the center, and gradually fading away to nothing as the distance from the center becomes greater and greater.

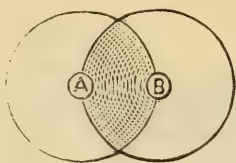


Fig. 2.

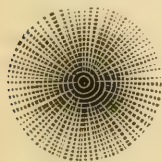


Fig. 3.

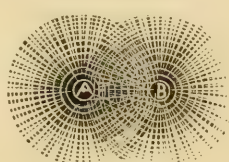


Fig. 4.

Fig. 3 represents the idea. With this view of the case, it will be seen that the interference is much less when the apiary B is placed three miles from the apiary A, as at Fig. 4, than we have previously considered. Just what the precise amount of interference is, I can not give in exact figures.

Now, some good friend will likely haul me over the coals for dealing so much in speculation, and ask me why I don't deal in facts. My good friend, the subject is such a slippery one that it is a very hard matter to get hold of any thing very positive. But the subject is one we *must* think about, and we *must* come to some kind of a conclusion when we come to establish an out apiary; and I will gladly

yield the floor to you if you will give us positive information.

So much for theory. As to my actual experience in the matter, I confess it has been such that my views have undergone considerable change. My Wilson apiary is just about three miles from home, in a bee-line. I thought this was too near, but it was convenient and desirable on several accounts. Without knowing any thing about it myself, I took the testimony of others that three miles is about a fair distance for bees to fly, and so they should be six miles apart, to avoid all interference. Making allowance for their scattering flight at the outside, I decided that there would be hardly enough lost by putting them a mile nearer to pay for traveling the extra mile in going back and forth to the out apiary; so I settled upon five miles as about the most desirable distance. But, as I said, the Wilson apiary was distant three miles; and after several years' experience I now seriously doubt if any thing would be gained by placing it further away. At different times, and many times, I have taken colonies from one apiary to the other, and in no case have I ever known the bees to fly back to their old locality. Now, if any of them, in their flight, got back upon their old field, would they not, from sheer force of habit, finding themselves on familiar ground, fly back to their old homes? The shaking-up of the journey, and also the strange appearance of the locality, would make them mark the new location, I know; but still I think the old habit would take them to the old home if they were on the old ground. On the other hand, when sweet clover was in bloom, bees were found on it along the road throughout the whole of the middle mile between the two apiaries, and they would hardly happen to meet just at the middle point between the two apiaries and not overlap. However, these middle bees may have been from some other apiary. I merely give it as my present guess, that three miles is far enough apart for my apiaries, and make no promise to adhere to that opinion for any specified length of time. Have others any experience that will help toward a guess in the matter?

At different times I have asked questions of others, and, without exception, received answers something after the following fashion:

"Suppose an out apiary is established at a proper distance north of the home apiary, in what direction would you plant a third apiary?"

"South."

"Where would you plant a fourth apiary?"

"East or west."

"Well, suppose we say east, then where would you plant a fifth?"

"West."

"And a sixth?"

"Well, somewhere further out."

In every case the idea was that a circle, or row of four apiaries, would be planted about the home apiary, something like Fig. 5.



Fig. 5.



Fig. 6.

This is well enough if only five apiaries are to be

established. But if the number is to reach seven or more, it is just as well to put six as four in the first circle, as in Fig. 6.

C. C. MILLER.

Marengo, Ill., April, 1887.

Many thanks, doctor, for telling us just what we have got to meet, sooner or later. Now, I happen to know that a good many localities are more or less overstocked, perhaps not often by one single owner; but many times where a whole neighborhood goes to bee-keeping, the result, unless during extra seasons, is a small amount of surplus per colony.—The distance bees fly has been a good deal discussed during years past; but I feel pretty well satisfied that you are right in deciding that bees seldom fly more than three miles; and notwithstanding all the facts that have been brought forth, I do not believe they work profitably more than half that distance. I feel so sure I am right that I have furnished buckwheat and alsike clover-seed to our farming friends who are no more than a mile and a half distant from our apiary. Where they live two miles distant, we sometimes let them have it at half price. When we first brought our Italians to Medina we rarely found them more than two miles from home. When there was a scarcity of blossoms, however, they were occasionally found two miles and a half away. This scarcity always occurred between fruit-blossoms and clover. At this time, the wild thorn-apple would be covered with Italians two miles from home, while the same trees three or four miles from our apiary were covered with black bees and no Italians. Perhaps there were not Italians *enough* at that time in our apiary. These observations were of no avail a year or two later, because the Italians had got into the woods. I think you are right about it, and Fig. 6 would be the plan I would suggest for seven apiaries. You may remember, the same thing is suggested in our A B C book.

ABOUT DRINKING-WATER.

FRIEND TERRY DISCUSSES THIS IMPORTANT MATTER.

THE writer traveled some during the past winter with Prof. Detmers, of the Ohio State University. Noticing that he did not drink any water, but always tea and coffee only, I asked him if he was afraid to drink water when away from home. "Yes," he replied, "for there is as much sickness and death caused by drinking impure water as by drinking liquor. I drink no water when away from home unless it has been boiled. Then it is safe." Not long afterward I met another scientific authority, and told him what Prof. Detmers had said, and asked if that was correct. He laughed, and said Detmers had put the case a little too strongly against water; but still there was a good deal of truth in his statement, for very much sickness and death is certainly the result of drinking impure water. Not long after, I had the pleasure of eating supper with Dr. C. L. Mees, of the Athens University, at a hotel in the city. I kept watch, knowing that he was a thoroughly posted man, to see whether he would drink any water. He drank some. Then I asked him if he wasn't afraid of it. He said there was some

risk, perhaps; but he would take the chances as long as he knew there were no cases of typhoid fever or similar diseases in the city. He was more afraid of some disease that was present being communicated through the drinking-water, than of disease that originated from the impure drink. He seemed to think that these diseases were not started by impure water or foul air, but that they lowered the tone of the system so that the germs of typhoid fever, etc., if they happened around, were far more likely to find lodgment and a proper place to develop in.

Well, I told the doctor how much pains we had taken to have pure water at our house, so as to get his advice. I told him we had a slate roof on the house, and a cement cistern, with a brick partition in it to filter the water. He said: "If you clean out your cistern once in a year or so, you have got as pure drinking-water as you can obtain. If you had a shingle roof, why, then you ought to let the first rain that falls in a shower run off; and after the roof becomes clean, turn it into the cistern. If you burned soft coal, this would be best, even with your slate roof; but with anthracite coal it will not matter much." (This brick filter is simply a partition built up in the cistern, so as to have about one-fourth of the space on one side, and three-fourths on the other. The water flows into the larger space, and is pumped out of the other. We used quite hard bricks and cement. Our water has always been perfectly clear.)

Next, I told of my well, where we get nice cool drinking-water in summer. In the winter we use only cistern-water. The well is in the dooryard, a few feet from the kitchen-porch. The yard and the fields around are kept clean and pure; that is, no slops are emptied more than once in a place, and the privy-tub is water-tight, and the contents absorbed with dry muck. I spoke rather boastfully, as I have taken a good deal of pains in that line, of my nice pure well-water. The shrewd professor smiled quietly, and remarked: "You can not say that your water is pure, although you have taken wise precautions, such as every person should, to try to have it so. You manure your fields, and more or less vegetable matter decays on them. The rains fall on these fields, and the water goes down and carries with it some impurities from this decaying vegetable matter. The earth will not filter them all out. In fact, it is next to impossible to filter them all out. They will go through the brick wall in your cistern with the water. Careful experiments have shown that typhoid germs can not be filtered out of water by earth. Your water may be bright and clear, but it may not be entirely pure. In fact, chemistry hardly dares to say, after analyzing, that a given sample of water is harmless. It is far easier to tell those which are certainly harmful. You have taken every precaution that you can in your location, but do not be too positive about your water being too pure."

Well, I was taken down, I assure you, friend Root. Perfection can not be attained, perhaps, in this direction nor any other; but we can certainly all work toward it. However, they say boiling would render the water *perfectly* safe. Certainly every one ought to take all the precautions we have. One should do all he can for his own protection, according to our best present light, and then trust in Providence.

A man told me this last winter, after hearing me

talk at an institute on the subject, that his slop-drain from the house ran by the well, and within ten feet, and that it was built of common drain-tile, and asked if I thought there was any danger in drinking the water from the well, under the circumstances. The slops could run out between every joint in the tiles, and it is only a matter of time when that water will be dangerous to drink. I told him so. If he does not tend to it immediately, I have no faith to believe that Providence will save him. Let us all look to our water supply, and see if we have fairly earned the right to trust in Providence, with an entirely clear conscience.

One more point in the same line. It has been clearly shown of late, that germs of disease can be carried in ice, and thus get into our drinking-water. To illustrate: Some children died of diphtheria, as it was called. Several physicians were employed to hunt up the cause. They could find nothing about the house or water or surroundings to cause the disease. They were about to give up when one suggested they examine the ice. In it they found the germs of swine plague. They soon found out that some hogs that died of the disease were thrown into the stream from which the ice was cut. This was done just before it froze up. In many other cases, disease has been traced directly to impure ice. So one must look out for the ice, now, as much as for the water.

T. B. TERRY.

Hudson, O., April, 1887.

Very good, old friend; but it seems to me you are in a hurry to drop your subject this time. Your last point, about disease being contained in the ice, is certainly a most serious one, and I felt almost vexed to have you drop it with so few words. I have for years been very sensitive in regard to drinking-water; that is, I do not feel right after drinking certain kinds of water, when I do feel right by getting water that Nature seems to say is all right. Not a great many years ago I felt thirsty all the time, but none of the water from any of our wells or cisterns seemed to satisfy my thirst; that is, if I drank as much as I felt like drinking it made me feel worse than if I had not drank at all. I drank milk for a good many days, but Nature seemed to say, "We have had plenty of this stuff; we want some good pure water." One evening as I was going over the factory after the hands had all gone home, I heard the rain upon the roof, and something seemed to say, "There, that is exactly what I want and have been wanting." I replied, or perhaps reasoned within myself, that the water from our slate roof over at the house must be just as good, but it tasted, at least faintly, of the lime used in making the cistern, and nature seemed to call so strongly for the pure water just coming from the clouds that I got a great big tin dish-pan and set it outdoors until there was enough for a drink. It seemed to fill the bill exactly. In fact, it was so delicious that I drank more and more. I decided to test the matter thoroughly by drinking an enormous quantity. To my astonishment, no unpleasant results followed. I went to bed and slept soundly. From that day to this I have been in the habit of catching water from the clouds, or melting snow when we have snow, instead of rain, and I really believe I can drink a quart of water distilled from

Nature's laboratory, and grow fat on it—that is, if anybody *can* grow fat on pure rain water alone. Soft water from sandstone springs seems to answer the purpose in the same way. I can drink and drink, and it does not seem to make any difference how much I drink, by waiting so as to have an interval between these drinks. Pure soft water seems to act on my system as it does on my face and hands—it washes away the accumulations and debris, as it were. Hard water from most of the wells, especially from the wells in clay soils, does not answer for me. Nature submits to it for a while, but pretty soon she says, "We have had all of these salts of lime and earthy matter we can dispose of for some time to come; now give us some pure clean water that does not leave any residue when you boil it down."

Of course, I have no right to insist that soft water, or the fresh water from the clouds, is best for every one; and I am not sure it is *always* best for me. Sometimes when I taste the water from mineral springs, or springs that contain a considerable quantity of mineral salts, Nature seems to say, "This is a good thing; let us have quite a little of it." But sooner or later the demand comes, clearly and unmistakably, for the soft water from the clouds. Tea and coffee cease to fill the bill. Even lemonade is not the thing, and back I get again to my favorite beverage of rain water caught in a tin pan.* At one time, one of the conductors that brings the water from the slate roof to the cistern became leaky, and I caught a dipperful right where it passed into the cistern, but before it had got there. This seemed to fill the bill about as well as rain water out of the tin pan; but I imagined that even the slate roof and the tin pipes had given it a slight taint. Suppose, friends, you think of this matter, and experiment for yourselves. I do believe that a natural, unpurverted taste is a safer and surer guide than any rules that can be laid down, even by "big doctors." One who feels perfectly stout and well will not, perhaps, need to be so "notional," as some may term it; and I quite agree with the doctor who said that the danger from impure drinking-water is principally to those whose systems are in a weak condition, and ready to let fevers, etc., find a lodgment. I believe, however, we may keep our systems in a high and healthy tone by being careful about our food and drink.

I once used considerable ice (putting it directly into a tank used for drinking-water) that I became satisfied was affecting me injuriously. Investigation showed that it had been cut from a pond where cattle drank in the summer time, and where they could stand in the water up to their knees. I know the symptoms of bad water on myself so well, that I think I can tell it almost at once. When I was a boy in my teens there seemed to be a sort of ague and fever hanging around me. I studied over the matter until I felt satisfied that the feelings origi-

*I have often kept rain water, thus caught from the clouds, in an unglazed covered stone jar, placed in the cellar. The unglazed jar keeps the water moderately cool by evaporation, and even in the hottest weather in summer I find it very palatable and refreshing.

nated from the water we drank. We were in a new country, and no wells had been dug. Where I was boarding, the water they used and drank came from a hole dug in a low spot in the woods. They called it a "spring," but it was so full of organic matter that a very cheap microscope showed the wigglers by the thousands. I changed my boarding-place, and commenced drinking water from a deep well that showed none of this animal life, and I was myself again; almost at once.

By the way, it may not be amiss to state that it is a popular fallacy to suppose that there are live animals in our best drinking-water. It is not so. The water from a good well or spring is almost if not entirely free from any such forms of living animals. I have often wished we could have a cistern made of glass. A great big glass bottle would suit me. Then, of course, we should want a good filter to prevent dust, leaves, and trash of any kind from getting into our glass-bottle cistern. I do not like cement cisterns, for the reasons I have given; but perhaps when the taste of lime has all been washed away they may do very well. Wood is used entirely in some places; and if kept well cleaned out, it may do quite well—I mean for constructing cisterns. Iron or wooden pipes for the water to *pass through* are perhaps unobjectionable, but I have never given them the test mentioned above.

VARIOUS TOPICS.

DARK HONEY FOR THE COMBS.

YOU ask to hear from readers who have found it best to have extracted honey light, and to get the dark honey in combs. That is my experience. Some people were prejudiced against extracted honey, because they supposed it would necessarily be dark and strong. The majority of customers prefer light honey to dark, and comb to extracted.

My bees were not inclined to help me in this matter, however. They work more readily in frames at any time, but especially during buckwheat bloom, some refusing to enter sections, and others doing but little, although I contracted the surplus apartments, and tugged them up warm. The grocer to whom I sell asked, "Why don't you have more of the dark honey in the comb?" He also tells me that yellow wax brings a higher price than the light. Why is it so? The light is made from cappings, the dark from old combs. He sometimes melts over the light wax, adding butter-color.

KING-BIRDS, AND WHY QUEENS DISAPPEAR.

In answer to one who asked why his queens disappeared just when they should commence laying, I would say they were probably killed while flying out. I had a similar experience, the trouble ending when a king-bird was shot. Prof. Cook asks whether the king-bird receives stings. I think not. I watched this one for some time. He would catch a bee, alight on an old apple-tree, thump the bee against a limb, and then swallow it. I watched him catch and eat thirteen.

SALT FOR BEES.

Bees want salt, but not a large quantity—about a tablespoonful to a pail of water. When I make a

strong brine they prefer fresh water; otherwise they work on the salt water early and late, and work right on, during rainy days as well as sunny ones.

ALSIKE.

Will you please tell us how to manage alsike clover to have it come into bloom just as white clover begins to fail? Should it be pastured or cut early, and how would that affect the hay and seed crop?

RASPBERRIES.

So many are praising the Cuthbert raspberry that I wish to say that we think the Philadelphia more profitable, both for honey and fruit. It is true, the plant is a trifle less hardy, the berries are not as good a flavor (some think them better), and they are not quite as large or hard; but they fill both berry and honey boxes. The Cuthbert is good for a late fancy berry.

I am glad to see the recipes for cakes and candies. Writers should mention the kind of honey used. Buckwheat honey makes a richer cake than white-clover honey. The strong taste and stronger smell do not recommend it to the fastidious ones, however. What can be done to destroy that and the sharp twang in some of the light honeys? A trace of propolis sometimes causes a smart taste.

Delavan, Wis.

6—L. WILLIAMS, 13—13.

Thanks, friend W., for your hint in regard to the amount of salt to be used in a pailful of water. I think now that I can remember failing to get bees to use salt water, just because I made it too strong.—Alsike clover can be kept from blooming either by mowing or by pasturing. I can not tell what the effect is on the hay or seed. Perhaps our readers who are accustomed to cutting it early can answer.—I do not know how it is possible to remove the sharp twang you mention, noticed in some kinds of honey.

SPREADING BROOD.

A FEW HINTS FOR BEGINNERS AND OTHERS.

AS spring is drawing near, a few words on the above subject may save some beginner in bee culture much loss by the untimely spreading of brood in early spring. For a number of years I have been in the habit of spreading the brood in spring, and I am satisfied now that I have gained little if any thing by so doing; and as I struck on a plan last spring that suits me much better, and is perfectly safe, I wish to give it. As soon in the spring as the bees begin to gather pollen they are confined to the number of frames containing brood by a division-board, or a frame solid full of honey. When these are full of brood, the division-board or frame of honey is pushed back, and an empty comb placed beside the brood-nest. If the colony is in a prosperous condition, the queen will take possession of this empty comb just as quick as she would if it were placed in the center of the brood-nest. The above plan is the one we used last spring, and I never had bees build up so fast and become strong as early in the spring as they did last year.

I believe it is a bad plan to break the brood-nest in the spring, as it is a shock to the bees that they do not get over in a number of days; but when the combs are placed at the side, the brood-nest is enlarged without disturbing it.

G. A. WRIGHT.

Glenwood, Susq. Co., Pa., Feb. 1, 1887.

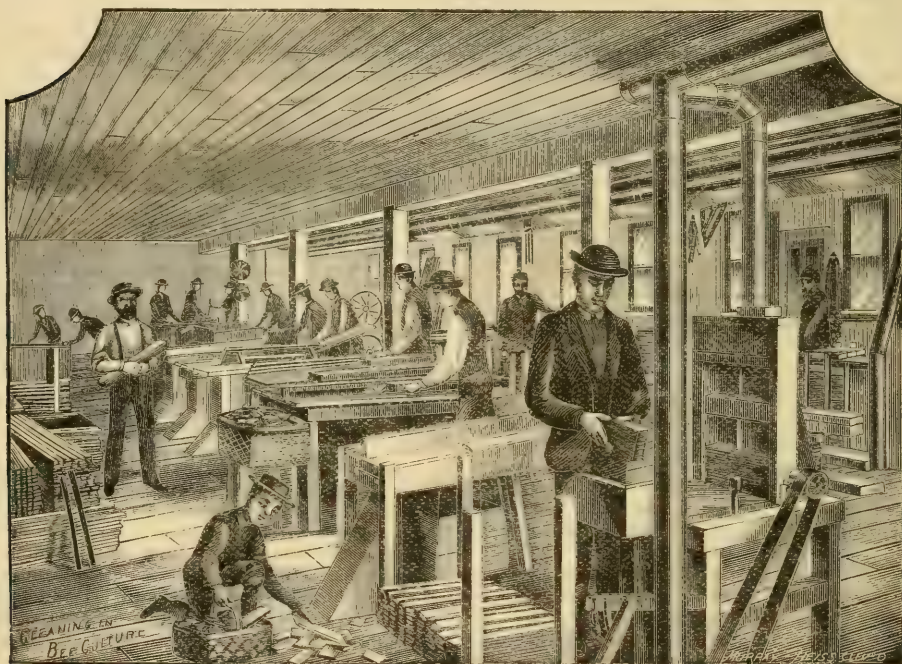
OUR WOOD-WORKING DEPARTMENT.

A GLIMPSE AT BEE-HIVE MACHINERY.

AS announced in a previous issue, we herewith give our readers a view through the central portion of our wood-working department where all our hives, sections, frames, and every article made of wood, pertaining to apiculture, is manufactured. The room which you see is 44 x 96 feet, and there is scarcely a belt to be seen; and where one does come up into the room it is boxed so that there may be no danger to the workmen or small boys engaged in picking up sticks. All the shafting and pulleys are in the basement below; and nobody but experienced men go down to oil, or, to put on and take off the

the room, you will notice a large pipe. Along the latter, at different intervals, are openings through which the hot air is allowed to escape. The large pipe from which this hot air comes, communicates with a smaller exhaust-fan. This is connected with a coil of steam-pipes, aggregating 600 feet in length. The iron casing inclosing said steam-pipes has a duct communicating directly outdoors. The revolution of the fan causes a current of air to blow into the open-air duct, through the coil of hot steam-pipes, thence through the fan, and finally into the large tin distributing-pipe which we have already described.

In spite of all precautions we have made for the protection of our men, we have had a number of serious accidents. Somebody,



A VIEW IN ONE OF THE ROOMS OF OUR NEW BUILDING.

belts. Although there are a great many saws running, contrary to what you might expect there is little if any inconvenience from sawdust flying in the room.

We have previously stated, that a 52-inch exhaust-fan is located in the basement. Connecting directly with this is a 14-inch galvanized-iron pipe, and this pipe communicates with every wood-working machine by means of a smaller pipe. Thus the sawdust and shavings, as fast as made, are carried directly into the boiler-furnace. The men you see there at work have things not only arranged as safe as possible, but all small particles of dust are removed from the atmosphere of the room by the apparatus we have described. In addition to this, in cold weather, pure hot air is blown into the room.

Near the ceiling, in the central part of

perhaps, has grown a little careless, and the whizzing saw becomes less and less dangerous to him until he has allowed his finger to get too close to the saw. The result is the loss or mutilation of one or more fingers. Perchance he tries a new experiment by letting a block down over the saw. Before he knows it the saw has snatched it from under his hand; and then, quicker than a flash, his fingers are drawn against its teeth. Sometimes a stick tumbles on to a saw, the speed of which shoots the stick like a bullet. If no fellow-workman stands in its range, all well and good. We mention these facts to show you how accidents may happen, and that all of you who have to do with saws may be careful.

Having given you a general description of the way in which our wood-working department is constructed, let us now proceed to

some of the details. The machine in front of the young man holding a pile of sections, is what is called a Gray one-piece section-machine. He is in the act of putting a pile of sections into the machine. Having done this he steps around to the other side; and as fast as the finished sections drop down on a tray with a zip, zip, zip, he piles them into a box holding 500. This machine is automatic, and one man can feed the strips of sections, and box them up, while the machine is in motion. You will notice at the right of the young man, four stakes sticking up. Although the engraving does not show it, this is really a truck which can be pushed about the room, filled with hives, sections, or whatever else the men may be working on. We have about two dozen of these trucks constantly in use, not only in our wood-working room, but in all our departments.

At the rear of the young man are several sawyers ripping section-bolts into strips 18 inches long, and $1\frac{1}{2}$ inches wide and $\frac{1}{4}$ inch thick. As they leave the saws, these strips, or one-piece-section blanks, are perfectly smooth on both sides. They are picked up by small boys, and put into the trucks to which we have already referred. These trucks are then shoved up to the section-machines, only one of which is shown in the picture, the other being located in front of the one which you see. Near the center of the room is a couple of cross-cut saws, where all the cross-cut work is done. Further back is the planer. At the right is a band re-saw. This machine is so large that it reaches to the ceiling, though in the engraving it is represented as much smaller. Perhaps right here a little description of this saw may be interesting to some of our readers.

A heavy iron casting holds two wheels in such a way that one wheel is directly above the other, and the distance apart varies from 6 to 20 inches, depending upon the width of the stuff to be ripped. These two wheels are connected by a steel belt, one edge of which is serrated, or toothed. As the wheels revolve at a high rate of speed, this steel band, of necessity, travels at the same rate. The superiority of the band-saw over the ordinary re-saws rests in the fact that it will cut thinner boards with far less waste, and will do it more rapidly. It also cuts to the best possible advantage; that is, it is always cutting perpendicularly against the stuff. A couple of instances will illustrate the foregoing statements. Before we proceed, however, we will say that "re-sawing" means ripping thick boards into thinner ones. Well, let us take an inch board and run it through an ordinary circular re-saw, cutting it into as many thin boards as we can. The best circular saw for re-sawing a 20-inch board makes a waste of not less than $\frac{3}{8}$ of an inch. On cutting, we shall have only two boards left, each a small trifle over $\frac{1}{2}$ inch thick. It will now be impossible to re-saw these again, as a large circular saw would tear them all to pieces. We will next take an inch board and see how many thin boards we can cut out of it with a band re-saw. With the latter there is a waste

of only $\frac{1}{8}$ of an inch; and after once cutting, we have now two boards nearly half an inch thick. We adjust the rollers and put one of these again into the band saw, and find we are still able to re-saw it up into three boards. We can thus re-saw an inch board up into six thinner boards. Our Mr. Warner hopes to be able to cut wood-separators with it. As yet, however, the work is a little rough as it leaves the saw; but by filing and setting the teeth in a certain way, he may succeed in doing so.

In all kinds of work requiring thin boards, this machine will save us, in the course of the season, a considerable amount of lumber, which otherwise would go into sawdust. It was purchased of Fay & Co., Cincinnati, O. The cost was nearly \$400, and its weight two tons.

Let us now pass on. At our left, as we go up, is one of the cross-cut saws to which we have referred, near which stands our Mr. Warner, the foreman. He it is who stands in the distance (just over the young man's right shoulder in the foreground). Our engravers hardly did him justice; but as he is supposed to be quite a long way off, it will answer tolerably well. Just in front of Mr. Warner is the machine for cutting out insets in the section-bolts. This machine we illustrated and described in GLEANINGS, page 154. The next machine is for grooving the ends of the one-piece and four-piece sections. Still further on is a saw-table for ripping up our $\frac{1}{2}$ -inch lumber into all-wood frames. Every time a board passes over the gang-saws it rips three bottom-bars, top-bars, or end-bars, as the case may be. Last of all is an automatic machine which takes a pile of top-bars, grooves them for a comb-guide, and throws them down into a basket, without any one touching it, except a small boy who now and then gives it a feed of top-bars.

It is in this department where we turn out daily 20,000 sections; and we can and do make a thousand hives a day, besides doing other work.

About a car-load of lumber is cut up every three days. As fast as the pieces are finished they are piled up in the trucks and pushed into the main building. Sometimes a truck-load of stuff is put on to the elevator and carried into the second story, where the hives, etc., are put together.

In closing we would say that our artist took a view of the saw-room one afternoon in the dull season. If you will imagine more men, more machines, more piles of stuff, and, in general, more business, you will get a fair idea of the way things look in there during the rush which is just now coming upon us. Yes, the rush is just beginning. The foreman of our packing department tells us we are shipping about a carload of goods by freight every day, to say nothing of the mail and express.

Later, April 12.—We are pained to give the sad intelligence to our readers that one of our head sawyers, a man well on in years, had his hand mutilated so badly this morning that it had to be amputated. For some reason which no one can explain, he put his hand under the cutter-knives to one of the

section-machines seen in the foreground. He was trying to disengage a section-blank, which was caught. Instead of taking an iron hook which is provided for the purpose, he used his hand. We give you this fact, in order to impress upon the minds of you who have to do with saws or hive-making machinery, to be careful; be afraid of the saws; remember the terrible consequences.

OUR P. BENSON LETTER.

Luv & Beafstake & Beestings.

A ROMANTS.

INTO the life of evry I cum a time which taken at the flud leads on to forchune. Sith a time hed cum into the life of Emmy Jane. That was her 1st name. Emmy Jane Cary was her fool name. She was a hansum creetur, fare as the dooy breth of a mornin zeffer in the witching cam of twilite revery. Her parents on her father's side was a farmer, with four (4) sons and three (3) dotters. Emmy Jane was 1 of the dotters. Willy Davis hed been keepin compenny with her, but for sum time now a cool strain of feelin hed groad up atwixt them. I no oll about the koz of it but I druther not tell. Willy told me in confidents. Suffize it to say that the gap kep gittin wider an wider. You no sitch things are ap to go that way. He was hotty & she was proud, & nether wood give in a inch.



EMMA JANE AND POOR WILLY.

But the epock into her life to whitch I refurred in the beginnin was about to arrive. Willy hed bin up to Jack Wilsen's to git a settin of eggs from Jack's muther, not that Wilsen's hed enny better breed of hens, but they are ap to do better if you change eggs. Nowadaze people makes a fuss about thorowbred fowls & all that sort of thing, but bless you, thay was jist as good chicken pie years ago when thay diddent no enny thing about breeds oanly to change eggs now and then. But Ime gettin off the subjeck. Curuss how a buddy will run from 1 thing to another. Now thares Dan Jones. Heal commens to tell sumthing and run off on to sumthing else & like enuff forgit all about what he started on. Its reel tryin to lissen to sitch fokes. So as Willy was goin by Emmy Jane's he kep his hed down jist as if he diddent care a speck for her. That was the way with both of them, coald & indiffernt outside but all the time hed a give his oald boots to make up, & she wurshipt the verry ground he trod on. But jist then he heer a offul screech, and lookin round he see it was Emmy Jane. The bees was after her and she was a gittin lively, a yelpin evry step. Willy was afearod of bees but he summond oll his #twood and went to sucker her from the impending dainger. He 1st poot the eggs carefool like

in the fents corner. Eggs doant hatch near so good if thare shook up mutch, but it doant hurt them nun for cookin. Emmy Jane hed throad her apen over her hed, so the bees coddent git at her, and when Willy cum up a strikin wildy with both hands them bees jist piled onto him, & give it to him in both ize. You dot to a seen him. Thay was mourn 20 stings, and in lessen 2 minites boath ize was jest about shut. That fetcht Emmy Jane. She sez to him, sez she, "O my poor Willy," sez she, "are you killed?" "Not quite," sez he. "O," sez she "and you risked yure life to save me." And then she got him in the house and pored camfire & salleratus in his ize, & tied rough beef on them & he toled her thay never hed bin a thing atwixt him & Dell Stull, that he hed jist gone thare to git a yellow rose bush and wuzzt waitin on Dell at oll, but when Emmy Jane got mad he was too proud to explane.

Menny yeers has past, and Mrs. Davis, she that was Emmy Jane Cary, helps take care of the aperry & Willy refers with joy to the time when the bees got him back Emmy Jane.

P. BENSON, A. B. S.

THE CHAFF HIVE VS. SIMPLICITY.

AN A B C'S EXPERIENCE.

I SHOULD like to know why my bees are breeding so much faster in the Simplicity hives than they are in the chaff hives. I looked at my bees on the 20th, and found in a Simplicity hive a good-sized patch of brood and young bees already hatched out. They are hybrids. The queen is an Italian dollar queen. I got her from J. W. K. Shaw last spring. The queen must have begun to lay about Jan. 1st, or a little after, when the mercury was about down to zero. We have had a cold winter. Snow fell on the 5th about six inches deep. Some of the other colonies are in chaff hives, and they began breeding only a few days ago. They are strong swarms, on six L. frames, with plenty of stores, and well packed with chaff, according to your directions in the A B C book. The bees in those chaff hives are hybrids, and of the same lot of queens as the one in the Simplicity hive.

I do not find that the chaff hive has many advantages over the S. hive. I have blacks and full-blood Italians in one-story Simplicity hives, with chaff packed on each side, and a thin cloth over the frames. A little chaff is spread over the cloth, and a Simplicity cover put on. They are in fine condition now. Some have sealed brood; some have 4 frames and others only 3; and I expect them to come through good strong colonies in the spring.

We have certainly had a hard winter. I think the most of the bees here in box hives have died. Some absconded last summer; some were killed in the fall, and a good many have frozen this winter.

I like friend Doolittle's method of introducing queen-cells. I had my queens purely mated, rearing them late in the season, by keeping Italian drones in a queenless colony.

I like GLEANINGS so well that I am always anxious for it to arrive. I can not afford to do without it. I have read a good many bee-journals, but GLEANINGS is the best of any that I have read. I like to read your Home talks. It makes me feel like calling you brother in place of friend. Your goods are always the best, and always give satisfaction.

C. F. GRUBB.

Jubilee, Davidson Co., N. C., Jan. 29, 1887.

BEE-LEGISLATION.

SOMETHING ON DR. C. C. MILLER'S SIDE OF THE QUESTION.

FRIEND ROOT:—I should like to thank Dr. C. C. Miller for the way he has handled the opponents of legislation in the interests of bee-keepers. I believe he has come out ahead in every article he has written on the subject. His statements have been clearly and very concisely made, and I know that no one can truthfully say he has not been honest and candid in every instance; and he has most persistently stuck to the subject, which can not be said of any other one who has written upon the subject in GLEANINGS.

On p. 180, March 1, he says: "Controversy is not at all to my taste, and in the present case I have the uncomfortable feeling that, by advancing my views, I have lowered myself in the esteem of those whose good opinion I highly value." Can it be possible the doctor feels that way? When I read that sentence it gave me a feeling of sadness, and it does yet every time I think of it; for it matters not how much difference of opinion there may be, all who know the doctor will certainly give him credit for being sincere, and probably I should but voice the sentiment of many bee-keepers interested in the subject in saying that perhaps he is as much in advance of us all on the subject as "Old Abe" used to be found in advance of public sentiment in many things during the war, and that the doctor has *not* lowered himself in the esteem of those whose good opinion he so highly values, but that he has rather *raised* himself in the estimation of all. It may be possible that he is on the right track after all, and only time is needed to show such to be the case. When he proposed the appointing of a committee, at the N. A. B. K. Convention at Indianapolis last October, to investigate and report on the desirability and feasibility of legislation in the interest of bee-keepers, there was plenty of opposition; but, if I am not mistaken, not one who opposed the proposition then has said any thing about it in GLEANINGS. When such a man as Dr. Miller starts off from the beaten track, it is enough to make thoughtful people "think twice" before showing opposition.

Before there was any discussion of the matter of legislation, he wrote an article on the subject; and on page 781 of GLEANINGS for October 1, 1886, in the first sentence of the second column he says: "In plain words, I take the radical ground that legislation is needed, whereby, in some way, under proper limitations and restrictions, by paying for it, I may have the control of a number of acres or square miles as a range for my bees." Now, it seems to me that if every one who has written on the subject had kept that statement in mind, it would have prevented the use of such terms as "such a covetous and selfish spirit . . . as to favor legislation that would deprive any one, so disposed, of the pleasure of keeping bees," being applied to the doctor. What is there so very covetous or selfish in his or any one's else paying for a privilege to do a legitimate business in a certain locality? And you, friend Root, in your comments on the doctor's article, say, "Your ideas are good and sound, but I am afraid it will take a good while to get them into shape as they are in agriculture and some other pursuits." Well, what if it does? does that lessen the need or desirability of making the effort? If I am not mistaken, the Home of the Honey-Bees didn't grow up

in a day, but it has taken years of hard thinking, hard work, and push, and thousands of dollars, to grow that fine home and that large and perfectly ordered and well-stocked factory, etc., that have necessitated the building of a railroad depot for your accommodation. Have such bee-keepers as Cook, Dadant, Doolittle, Demaree, Heddon, Hutchinson, Jones, and the scores of equally successful ones become such by a few months of study and experience? Has it not been by the persistent work of years? Thanks, friend Root, for saying that the doctor's ideas are "good and sound."

In another article the doctor asks, "What kind of legislation is needed?" and then very frankly says, "I don't know." If there could be some feasible way devised, by legislation or otherwise, always justly, of course, by which those who desire to make bee-keeping a specialty could control the desired locality, then it might be desirable to make special effort to stock the locality with alsike, alfalfa, Chapman honey-plant, and other honey-plants suitable to the locality. It seems that you, friend Root, very naturally thought of this matter several years ago, when you were putting out your basswood orchard, and very naturally came to the conclusion that you could make it unprofitable for any one to attempt to make honey-gathering from your honey-orchard profitable, for you expected to raise queens and bees for sale, and not surplus honey.

On p. 945 of GLEANINGS for 1886, a writer says that the doctor has baited his hook for "suckers" and caught one at the first cast, etc. Ridicule is not argument, but with many it has more weight. If thinking as the doctor does makes one a "sucker," I should not be surprised if he had caught enough to completely brush off that "uncomfortable feeling" if they would only use their bee-brushes. It seems to me that the *desirability* of controlling a prescribed locality by those making bee-keeping a specialty must be apparent to all. Its *practicability* is another matter. One would hardly think of attempting to raise grain or stock without having first obtained control of the needed locality.

I am afraid that the present generation of bee-keepers would have to live longer than father Abraham did before it would see all bee-keepers actuated by the spirit he was. If they were so actuated, legislation would not be needed. The doctor's articles plainly show that he has in view the interests of those engaged in the same pursuit he is, and fully realizes, as does Mrs. Harrison and all others, that, in order to raise "peas, beets, lettuce, and cabbages," people have "priority of location," and pay for it too; but where has the doctor said any thing about "priority of location," or suggested that any thing be done that would give a privilege to one bee-keeper that might not be enjoyed by any other? W. W. Maltby does some good rhyming on page 66 of GLEANINGS for 1887, but asks Dr. Miller a rather strange question when he says:

Now, Bro. Miller, pray tell, if you can,
Why for God's gifts we pay tribute to man.

It seems to me that Bro. Maltby answered his own question before he asked it when he said:

God made the earth, the earth raises flowers;
We don't produce them, so they are not ours.

Don't we pay tribute to man for the gifts of God because they are gifts to others and not to ourselves? I don't expect to have the benefits of God's gifts to others without paying for them.

Auburndale, O., Mar. 30, 1887.

A. B. MASON.

A NEBRASKA APIARY.

RIPENING HONEY, WINTERING, ETC.

HAND to you a photograph of my chaff-hive apiary. If you could simply glance at the original a moment you would soon decide that the artist has made a truthful picture. It was taken Nov. 30, 1885, soon after the leaves had fallen, and the bees had been prepared for winter quarters. It then comprised an apiary of 100 colonies, 72 of them being packed in our summer and winter chaff hive, which we will briefly describe further on, and as shown in the cut. The apiary is situated on a slight elevation, gradually descending to the east. If the observer will take the pains to turn himself about, facing the west, holding the

of the room warm, and of a degree necessary to cause the honey to be thick and of a well-ripened state for the market. Again, we find that honey put in shallow vessels in this kind of a place will ripen with nearly the same rapidity that it is ripened in the hives. During the winter months this upper half-story comes quite handy for storing away, until another season, all surplus honey, cases, and all other apiarian supplies that may be made during the season of rest for the apiarist. The lower part of this building is used for the manufacture of all our bee-hive work.

After several years' experience in wintering bees we have learned that bees, if wintered on their summer stands successfully, must have protection against the extreme temperatures of our



APIARY OF J. M. YOUNG, ROCK BLUFFS, NEBRASKA.

picture before him, he will get a correct idea of which is north, south, east, or west. The cut includes nearly all the apiary, with the exception of a few hives left out at the left-hand corner.

The building, as seen in the background, is the work-shop and honey-house combined. It is in size 12 x 18 ft., and a story and a half high, although it looks from the engraving to be considerably smaller than it really is. The upper half-story is used for nearly all purposes, but more particularly for storing comb and extracted honey during the summer and fall months. From several years' experience in raising honey we have come to the conclusion that this is just such a place as is needed for ripening comb and extracted honey, from the fact that the sun's rays strike the roof of the building almost directly, always keeping that part

cold winters. With this object in view we have constructed our summer and winter chaff hive as shown in the cut. Since its introduction we have wintered with no particular loss. In fact, wherever it has been used by other bee-keepers it has given good satisfaction.

In preparing the bees for winter we remove all surplus frames from the upper story, fill in with dry leaves, or, what is considered best in this locality, dry oats chaff packed down very closely with the hand. If they are supplied with plenty of good honey they will not need any further protection or attention, from the time honey ceases in the fall until it comes again the next season.

The small hives, as seen in the foreground, are queen-rearing hives. They are made to hold three frames of the regular Simplicity size. Nearly all

our queens are fertilized in these hives, and they are quite handy for various other purposes, such as shipping, etc. The small holes, as shown in the ends of the hives, are for ventilation, and are put in when the hives are made. On the cover of these small hives are handles to catch on by, and are just as handy as a common gripsack to carry around. When the queen-rearing season is over they are all gathered up and placed away in the dry until another season.

By observing closely there may be seen some square-looking hives near the center of the engraving. They contain two sets of combs. They are used for extracting purposes. The frames are of the Gallup pattern. These hives we use solely for extracting, taking the honey from the upper story only.

The trees, as shown in the engraving, are fruit-trees, some of them being quite large. During the summer months we like plenty of shade; but during winter we want no shade.

Later.—Since writing the above the bees have had a good fly, and they seem to welcome the warm genial sunshine. On examination at this date, March 7, we find that there are 10 colonies out of 96 that have failed to answer to roll-call. Three of those that are dead were in our chaff hives. This is about the greatest loss we have ever had in this hive. Two of these were very late swarms, therefore we could hardly expect them to stand such a trying winter as the present one has been.

As it is just about like you, friend Root, to want to know about everybody, I will say, in conclusion, that I have been a subscriber to GLEANINGS nearly ever since its existence, and to it I am indebted for a large share of instructions in connection with my experience in bee culture. That part called *Our Homes* I have always taken a special interest in, from the fact that its teachings coincide with my views and daily routine of life. I don't use tobacco in any form whatever, and am a strong worker against intemperance. I am an unmarried man, not very old, and if you want to see a fellow who looks like me, just take another peep at the personage in the engraving, who holds a Clark smoker in his hand, and is holding on to a small apple-tree.

Rock Bluffs, Neb.

J. M. YOUNG.

I am sure, friend Y., we are very glad to get a glimpse of yourself and the place where you find "something to do, and how to be happy in doing it." But why don't you tell us something about the rest of the folks? Is the calm-looking chap back of you your brother or cousin? And how about the man with the dog? Is that a pipe he has in his fingers? If so, why don't you labor with him gently? And then, again, there is that nice-looking woman near by, and the little chick that seems either afraid of the bees or of the photographer. May be she thinks the machine upon stilts is going to "shoot" pretty soon. May be the woman is your sister or cousin—possibly somebody's else sister. But I suppose courtesy forbids our being inquisitive any further in this line. I know you say in your letter that the photograph was taken when the leaves were off the trees; but it is so much more expensive to engrave dry brush than green foliage, that I told the artist he might put some foliage on the trees, so it would look more shady like. Is the fellow who is leaning

against the ladder in the background the man who does all the work—that is, with the assistance of the fellow who is making the dog stand still? The two are in their shirtsleeves, while the rest of you seem to have your Sunday clothes on. Never mind, friend Y.; we are satisfied that you are well fixed, in any event. In fact, any young fellow who is temperate, willing to work, and loves righteousness, will find happiness sooner or later, if he does not weary in well doing.

NEW YORK STATE BEE-KEEPERS' ASSOCIATION.

REPORT OF COMMITTEE ON EXHIBITS.

S. VALENTINE & SON, of Hagerstown, Md., exhibit a hive called the "Success." It is a hive which we think will answer very well in the South, but will hardly serve us in this section, as it has chaff on only two sides.

A. D. Davis & Co., of Bradford, Vt., exhibit a hive which we consider the same as the "Bristol," introduced by A. E. Manum, the difference being that the frames run lengthwise of the hive instead of across the entrance, as does the Bristol; and we also consider the deep grooves in frames a strong objection, as it offers a hiding and breeding place for moths. We consider the hive a good and practical one, only too expensive for use for the extensive bee-keeper. Messrs. Davis & Co. also present a nucleus hive which we consider very good for shipping purposes.

Foster & Adams, of Utica, N. Y., exhibit two boxes of honey, mounted on a sort of whirligig, for which we can find no use.

Mr. Abbott, of England, exhibits a shipping-crate mounted on springs, in the form of our spring beds. This we think an admirable crate, and will find favor, if not too expensive. Mr. Abbott also exhibits several samples of packages for putting up extracted honey. These we consider very nice.

W. E. Clark, of Oriskany, N. Y., has a fine exhibit of smokers, honey-knives, one-piece sections, and bee-books, which we consider good.

J. C. Newman, of Peoria, N. Y., exhibits shipping-crates and separators, which we consider very nice.

Mr. E. Hastings, of Newport Mills, N. Y., exhibits a tin feeder, which is very novel; and although we have not tested it, and know of no one who has, we think it will prove a good thing.

F. A. Salisbury, of Syracuse, N. Y., exhibits a hive which we consider complicated, and not economical enough for practical use.

E. R. Newcomb, of Pleasant Valley, N. Y., has a large and very nice exhibit, among which is a chaff hive which we consider a practical one; still, we do not approve of the interior arrangement; otherwise the hives are well made, and there are a variety of styles which will suit almost any location. His shipping-crates, those in which the boxes are tiered, we do not consider good.

Aspinwall & Treadwell, of Barrytown, N. Y., have a very large and fine exhibit, among which is their "Electric" hive for the South. This we consider very good, and we also commend their chaff Electric hive for its simplicity and cheapness. Their knife-heater, for keeping the uncapping-knives warm while extracting, we pronounce very good and useful.

We also find on exhibition three styles of smokers, and we consider them all good. We also find four styles of uncapping-knives on exhibition. We consider them all good and have no preferences. There is also a good display of books devoted to bee-keeping, on exhibition; this we are much pleased to see.

Aspinwall & Treadwell also exhibit a wax-extractor which we consider very good, and the best on exhibition. We also find on exhibition several honey-extractors, among which is a reversible extractor, which we consider very good for a business run on a large scale; but for our use, the smaller extractors on exhibition we consider equally good, and will answer our purpose fully as well. We also find on exhibition two styles of comb foundation (flat and natural base), and we pronounce the natural base preferable for all purposes.

There is also on exhibition a photograph of some of our prominent bee-keepers, presented by Mr. Tuttle. We consider it nicely gotten up, and, as far as we know the likenesses, they are very good, and we think that Mr. Tuttle deserves a great deal of commendation. All of which your committee respectfully submits.

R. BACON,
IRA. BARBER, } Com.
I. L. SCOFIELD, }

Pine Plains, N. Y.

G. H. KNICKERBOCKER.

BUMBLE-BEES, AGAIN.

REMINISCENCES AND OBSERVATIONS FROM G. M. DOOLITTLE.

IT is a very rare thing that I read any article in our bee-papers with more interest than I had in reading the one about bumble-bees, on page 181 of GLEANINGS, written by Prof. Cook.

When a boy there was no other one thing so interesting to me in all the realm of nature as was a nest of bumble-bees. I have watched them for hours in admiration and curiosity, as well as to spend hours in the "fun" (as all boys think it is) of trying to out-general the little fellows, to get the bit of precious nectar which the nest might contain. My regret now is, that this "fun" was often "death to the bees." I indorse all that Prof. Cook says of these bees, and would especially recommend to every reader what he says about encouraging the study of them and other insects. To encourage such study I want to tell the readers of GLEANINGS something about these bees, in addition to what Prof. Cook told us; and I desire that the professor and all shall carefully experiment the coming season to see whether I am right or not. Prof. Cook told us that the queen bumble-bee is the only one which lived over winter. This I am sure is right; but the point I wished to know most about was where and in what state did she pass the winter. Bro. Clarke will say, "hibernation," and I guess he is correct. But where? Well, until some one proves differently, I say in the earth. This I always believed, as in early boyhood I saw them coming out of the ground or from under a sod in spring when planting potatoes; but I was not so sure about it as I was ten years ago this spring. Ten years ago last fall I built my shop, and about one-fourth of the floor-space was left uncovered so as to set my steam-engine directly on the ground. One warm day the next May, while at work in the shop with closed doors, I heard a bumble-bee trying to fly down by the engine; and upon

going there it rose from near a little round hole in the ground, and flew to a window. At night I had three bumble-bees on the windows, and at no time had any of the doors or windows of the shop been left open during the days and weeks previous. Since then I have never found a bumble-bee in the shop except when I *knew* it came in at the door or window.

To digress a little. One season there was a nest of hornets under one of the bottom-boards of a hive of bees which sat on the ground. These hornets became so populous that they went and came nearly as fast as the bees from the hive. In October the hornets made no appearance at their entrance-hole, so the fore part of November I set the hive off the bottom-board and lifted said board up to see what kind of a home my friends had had. I found they had dug away and carried off the soil so that a hole had been excavated as large as a peck measure, and down in this hung their combs, almost without the usual paper outside seen on them when built on trees, buildings, etc., as they usually are. But the most interesting part of it to me was, that, down in the deepest part of the hole, was about a teacupful of queen hornets in such a state of hibernation that I could handle them at pleasure without the least signs of life. I looked at them occasionally all winter and early spring, when one day in May I saw a queen hornet; and upon going to my nest at this time all were gone. To return:

It is only the young queens of the bumble-bees that live over the winter, according to my observation, the mother dying of old age about the time young queens become fertilized. Prof. Cook says the bumble-bee queen lays her eggs on a mass of pollen. I find she covers her eggs with pollen, so that each egg is surrounded by pollen; and when the larva hatches it eats itself out of this pollen, when the cell is formed, as he says. Of these eggs, only five to eight are at first laid (usually six), all of which are the small workers spoken of by the professor. Just previous to the hatching of these first workers, more eggs are inclosed in pollen; and, if all is prosperous, still others, till into August, and all of these eggs hatch out the larger-sized workers spoken of by the older writers. They are not the drones nor the queens, friend Cook, as they will soon show you by defending the nest, for the young queens never make any defense, except in the spring. Next, the eggs are laid for the drones, and then for the queens. The number laid seems to be governed by the strength of the little colony. Sometimes not over two or three of each, and again from 20 to 50.

In this locality there are at least six different varieties of these bees. A smallish bee, about the size of a cranberry, with a bright lemon-colored abdomen tipped with black, which appears first in spring, and always, as far as I have observed, build their nest in the ground. These are the ones which sing so sweetly while working on roses. Next a smaller kind having an abdomen of lemon and red. There is another very nearly like this last, except that the color is lemon and black. Then we have one about one-third larger than the first, whose abdomen is of a rusty orange color. These last three always, as far as I have ever seen, take an old mouse-nest top of the ground for their home. Next we have a bee about the size of the last, whose abdomen is nearly white, always called "white-backed bees" here, and for stinging qualities they are

ahead of any of them. Then, last of all, is a very large bee, the queens apparently attaining the size of a man's thumb up to first joint. These in color resemble the first. The last two are those oftenest found in buildings, but are not above taking an old mouse-nest for a home. The first four are not very numerous. The sixth is quite common, while the fifth equals all of the other five in regard to numbers.

Friend Root speaks of learning to tell those that do not sting. This may be a hard matter with some, but I can tell a drone bumble-bee as well as our drones from the hive. The drones from the first and last named, when mature, go in the shade of trees and sit on a fence-stake or mullein-top, and wait for the queens to come along. These are called "shade-bees" here. If you can catch such a bee you need have no fears of its stinging, for the bumble-bee drones have no sting. I have spent hours throwing bits of sticks or dirt past and near these bees, to see them chase and lay hold of them, for such a procedure is often more amusing on hot days in August than cutting thistles and weeds out of corn.

The drones of the fourth and fifth variety come out in large numbers, and swarm over the nest from sunrise till 9 or 10 o'clock on still mornings, and the knowledge of this fact has helped me to find hundreds of their nests. Here they chase each other about while waiting for the queens to mature ready for flight. If you want to see all about it, when you find drones thus sporting above a nest, take a long pole or pitch-fork, and suddenly break their nest open so as to get the queens to take wing. I have done so many times. You will have to do this carefully on your part, unless you are fixed sting-proof, for the workers will resent it with all fury.

One thing I desire to call attention to: These bees last spoken of exist and have existed for all time by in-and-in breeding. The others are always crossing, yet those which are bred in and in thrive beyond all the others. Will this apply to our honey-bees?

G. M. DOOLITTLE.

Borodino, N. Y., March, 1887.

Thanks, friend D., for the additional facts you furnish. I should like to have Prof. Cook tell us how now nearly your deductions agree with the generally accepted facts in reference to bumble-bees. I have often seen the kind you mention, that will post themselves in the shade, and I have also seen them chase after dirt, sticks, etc., or even insects. I guess Prof. Cook will have to reply to your last paragraph.

CYPRIAN BEES.

THEIR VICIOUS HABITS GRAPHICALLY DESCRIBED BY AN ENGLISHMAN.

FROM the *British Bee Journal* of March 15, page 20, we clip the following from the pen of our friend James A. Abbott, to whom reference has formerly been made. The facts related by Mr. A. accord very well with our own experience with the *pure* Cyprians, and so we are the more ready to accept it as true.

I have found that, while the Cyprians are in small colonies only, or while the hives contain only young bees, they may be easily handled, but, that when-

ever a stock is in condition to work a super or store surplus honey it is as dangerous to handle as a bombshell.

As I at first devoted all my spare time to raising queens I had no strong stocks to handle, and therefore could not fully appreciate their temper, but my subsequent experience is as much as I want. I remember one operation in particular. I had to remove a queen from a full colony, and felt determined that it should have every chance of behaving well. Having put on a new straw hat and veil, and a freshly washed holland jacket, made on purpose for handling bees, with tightly fitting waist-band and belt, the attack was made very much as directed by Mr. Simmins, without smoke.

The combs were handled in turn, the queen caught and carefully put in her box; but here the trouble began. The bees suddenly found some flaw in my management, though I can not say where; and though I had only to put the combs up together and replace the quilt, I was forced to retire twice before I could do so. The bees rose in a cloud and attacked me on all sides. Stings on the hands did not much matter, but when busybodies force themselves between one's coat-buttons and explore until they find a tender spot, it is more than a regular bee-man cares about. The second attack was made with the addition of string tied round the ankles, india-rubber gloves, and a smoker, but even thus armed I could not stay within range long enough to put on the quilt. Their resentment was now at its height, and a poor sparrow that settled near them was violently attacked and barely escaped with his life. Even when I considered all was over, and I had, after rest and refreshment, retired to my bedroom, an unsuccessful pioneer flew out on the removal of my waist-coat and attacked me with spirit. I do not say that Cyprian bees can not be handled any more than I would say tigers can not be tamed or bombshells charged, for I have sometimes managed them very pleasantly, but I would strongly advise any one who has any thing to do with them to be prepared for a desperate battle at any moment.

Southall, London.

J. A. ABBOTT.

We have not in all cases found the race as vicious as given above; but one must not be surprised if the Cyprians which he has to handle should take it into their heads to behave just as described above. If they don't happen to find a "flaw" in the management, all well and good; but if the apiarist has unconsciously made a wrong move in their judgment, they will apprise him of the fact right speedily.

WOMEN AS BEE-KEEPERS.

REASONS OF FAILURE.

THE reason some women fail in bee-keeping is, they do not dress warm enough, and so take cold; or not cool enough, and so overheat. They don't release themselves from other cares enough, and so neglect the bees, or else overwork.

They don't have things handy to do work with, and so have to do a great deal of work to accomplish a little.

They don't keep the smoker in order, and so bees drive them or sting them badly.

They don't have things in readiness, and so do things out of season, just a little behind time with every thing, too late in building up colonies strong in the spring in time to get the white-clover honey; too late in putting on sections, and so bees get the swarming fever; too late in preparing for swarming, and so are driven almost to death; too late in getting the honey off until the honey-harvest is over and bees rob terribly; too late in fitting up for winter, and so bees have to go neglected, and die in winter, and then these women say, "Bee-keeping doesn't pay."

I find I need to watch against taking cold more than overwork, as much of our bee-work is done sitting or standing in the open air. When we have a good many bees we need occasionally to work in damp, cool, or windy weather. I have been nearly all my life troubled with weak lungs, being given up as in the last stages of consumption when at the age of 19 and 20, then in later years could hardly live through the cold winters on account of having pneumonia so often.

All lady bee-keepers should have rubber boots; They should put on extra clothing, a small hood under the bee-hat, and a tight-fitting cloak of light-colored heavy goods to wear in cool and damp weather. They should fix themselves up comfortably, so a bee can't crawl inside their clothing, and they will enjoy their work much more. They should not do as a woman did I once knew, who took great pains to fasten her hat on securely, and then rolled her split-open sleeves up to her shoulders. With her dress partly unfastened, she pitched into her bees, and they pitched into her in so lively a manner she thought "bee-keeping did not pay," and so borrowed our extractor and took all their honey away in the fall. She wondered why her bees died in winter.

MRS. L. C. AXTELL.

Roseville, Illinois.

I heartily indorse your remarks on good and comfortable clothing for your sex, Mrs. A., especially where they undertake open-air work like bee-keeping, etc.; and I hope no lady will be deterred from using rubber boots, by the thought that it may be unlady-like. It is always ladylike to be well protected. My wife has got in quite a habit lately of using my own rubber boots when she has occasion to go to the barn, and she says they are a real comfort. Most shoestores nowadays have light rubber boots specially for ladies. Throat troubles, and perhaps many cases of consumption might be kept away by proper care and the use of proper precautions when going out in the wet and damp weather.

T-SUPER FEEDER.

DR. C. C. MILLER TELLS US HOW TO FEED BEES.

I SHOULD say there are, in all reason, enough feeders without a new one; but I wanted one that would cost little, hold much, and be conveniently used as an accompaniment to the T super, so I submit the one I have planned. It is made of pine wood, and is nailed together with $\frac{3}{8}$ -in. wire nails. The materials are:

- 1 piece 15 x 11 $\frac{1}{4}$ x $\frac{1}{4}$ (a)
- 2 " 11 $\frac{1}{4}$ x 4 $\frac{1}{2}$ x $\frac{1}{4}$ (b)
- 2 " 14 x 2 $\frac{1}{2}$ x $\frac{1}{4}$ (c)
- 2 " 14 $\frac{1}{4}$ x 2 $\frac{1}{2}$ x $\frac{1}{4}$ (d)
- 4 " 14 $\frac{1}{2}$ x 3 $\frac{3}{4}$ x $\frac{3}{8}$ (e)

First a plain box is made by taking two of the pieces *e* for sides, and nailing upon them the two pieces *b* for ends, and then nailing on the piece *a* for a bottom. As this is to be a water-tight box, the nails should be put in quite thickly. I have put them in about $\frac{3}{8}$ of an inch apart, and I'm not sure whether a different distance would be any better. In order to make them hold tighter I slant each nail in driving, slanting the first nail one way and the next the other. Barbed nails (if such small nails are ever barbed) might be better, and

would not need to be slanted in nailing. Allow me to say, in passing, that the principal objection to the wire nails is their smoothness, which makes them pull out more easily. If barbed, this difficulty is overcome; and a simple way to have them perhaps even better than barbed is merely to let them get rusted. A rusted wire nail will hold very tight. In nailing the bottom on to the side pieces *e*, the nails need not be more than half as close together, as the grain of the wood here runs in such direction that such close nailing is not needed. The remaining two pieces, *c*, are to be nailed in the box, one parallel to each of the side-pieces, leaving between it and the side piece a space of $\frac{3}{8}$ inch. It will be seen that the ends of the box are $\frac{3}{8}$ of an inch higher than the sides, and the two inside pieces, *c*, that are afterward added, are to come flush with the upper edge of the ends, and this will leave a space of $\frac{3}{8}$ of an inch between these inside pieces and the bottom. Very few nails are needed to fasten these inside pieces, as no strain comes upon them, and they are not to be water-tight.

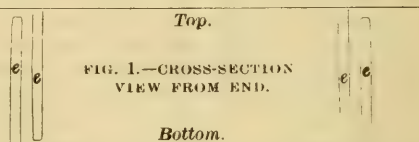
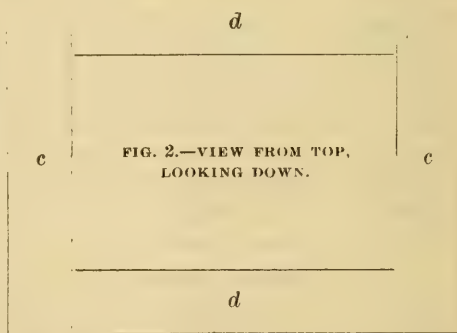


Fig. 1 represents a cross-section, showing how the end-board is nailed on the pieces *e*.

Now on each side nail a piece, *c*, upon the upper edge of the inside piece *e*, making the inside edge of *d* come flush with the inside surface of *e*. Only a few nails, say 5, are needed for this. Now, upon the upper edge of each end of the box nail the piece *c*, by driving three or four nails at each corner, making these nails (if not rusted) slant in opposite directions, as they are to bear the whole weight of the box, and all its contents. These three nails at each corner should be close together, per-



DIAGRAMS OF DR. MILLER'S T-SUPER FEEDER.

haps $\frac{1}{4}$ of an inch apart. Fig. 2 shows the position the pieces *c* and *d* occupy when nailed on the box.

The feeder is now complete, except that a strip of wire cloth must be nailed upon the outside lower edge of the inside piece *c*, to prevent the bees from crawling through under this board. Of course, this strip of wire cloth must come clear down to the bottom of the box, and it should have been nailed upon *e* before putting the box together. For convenience in making, it is probably

better that the inside pieces, *e*, have the end pieces nailed on them at the same time they are nailed on the sides before the bottom is nailed on.

The feeder can now be hung in a T super, and is ready for operation. At each side, between the walls of the super and the box, is a space of about 7-16 of an inch, up which the bees can pass and be admitted directly to the feed. As the feed is gradually consumed, the bees can follow down the $\frac{3}{4}$ -inch space, in which there is no danger of drowning, but the wire cloth at the bottom prevents entrance to the inside or central part of the feeder.

Now as to the advantages and disadvantages. They ought not to cost, if made in quantity, more than 10 cts. each, ready to nail. The feeder holds about 10 qts. When not in a super it is a rather flimsy affair as to the upper pieces, which would be easily split off. Perhaps if made of thicker stuff it would be stronger; but when in use it is sufficiently strong. When first filled it leaks. This can be remedied by running hot wax around the corners. I would, however, just as soon have it leak, as it leaks directly on the bees. The feed can not be taken as rapidly as from a number of Simplicity feeders placed on the frames, as the latter present a larger surface to which the bees have access. The capacity in this respect could be doubled by having the inside piece, *e*, $1\frac{1}{2}$ in. distant from the outside, and another piece half way between the two with a $\frac{3}{4}$ space both top and bottom. On the other hand, this feeder is filled much more readily than the Simplicities, as the super cover, when lifted off, reveals an open space, $11\frac{1}{4} \times 9$ inches, into which the feed can be poured, and no bee from within can get into this part. The feeder, of course, could be nailed fast to the super, and then there would be nothing flimsy about it, but it would cost more. The feeder is not likely to be needed at a time when supers are in use otherwise.

C. C. MILLER.

Very good, doctor; but I wonder if you knew how serious a matter it is to recommend an implement for bee culture without first counting the troubles and mishaps that might possibly result by putting it in the hands of the inexperienced. First, you say it would not make any difference if it does leak, as it leaks directly on to the bees. Now, with a strong colony, with the entrance properly contracted, perhaps it would not do any particular harm; but with a colony rather weak (and the colonies that need feeding are many times of this class), before you know it the feed would be running out at the entrance, or over the bottom-boards, at the sides of the hive. Robbers would get hold of it, and the result might be that we should have more sensational articles in the papers about people being driven from the streets, and horses being stung to death, etc. I think you had better wax the joints, and then try the feeder with water. If it holds water it will hold syrup. Another thing: As you have arranged it, the bottom of your feeder will be nearly or quite an inch above the honey-board. I suppose, of course, you meant to leave the honey-board left on. Now, in using such a large quantity of feed as this feeder will hold, the bees will start comb-building with a vengeance, and it seems to me they would be very likely to build combs

between the feeder and the honey-board. Perhaps somebody who has tried it can tell us about this. I grant, the feeder would be a very convenient one, and you could give the colony a great abundance with very little trouble. From what experience I have had, however, I would not think of using such a feeder unless an outside shell be placed over it and the super. Inside of a chaff hive or inside of a Simplicity hive it would do very nicely; but if there are cracks where the bees can see through and smell the feed, they will often (at least in our apiary) bite away the solid wood until they can squeeze through where the cracks and openings are.

A LETTER FROM ONE OF OUR MISSIONARIES IN CHINA.

SALT FOR BEES; SOME FACTS IN REGARD TO THE MATTER, FROM FAR-AWAY CHINA.

DEAR FRIEND ROOT:—While on my way from Foochow to this place last November I noticed a thing which seemed to me to throw light on the question of why bees should suck the moisture from dirty places. We were traveling by boat; and as there are many rapids in the river, the boatmen sometimes row, sometimes pole, and sometimes track. We had reached the head of a long stretch of still water, where all the boats on the river had to change from rowing to tracking. The landing-place was a large bank of clean sharp sand, and my wife, daughter, and I got off for a walk, as the boats make such slow progress that we can walk on at our leisure, and sit down and wait for them to catch up. As we ascended the sand-bank our little girl called my attention to an irregular patch on the sand, eight or ten inches broad, and brown with bees. They all had their tongues thrust out, eagerly sucking something from the sand, and paid no attention to our presence, not even when I knelt down and brought my nose close to them to see if there was any odor to show what it was that proved so attractive to them. On looking further we found three or four such patches of bees; and in every case the sand smelled of urine. In fact, the bees were eagerly sucking fresh urine from the clean sharp sand. The bees were larger, and of a little lighter brown, than most of the honey-bees I had seen before in China, so I asked the Chinese what those insects were. They replied "T'ang fung;" i. e., sugar-wasps. The correct Chinese would have been, "mih fung," or honey-wasps, but the common people often call them sugar-wasps.

There is one other honey-eating insect which, like the bee, has this same fondness for dirty puddles, and this is the butterfly. The nectar of flowers is his principal food. Now, it is a well-known fact that certain minerals enter into the composition of all living tissues, such as salt, sulphur, lime, and phosphorus. These minerals exist in minute quantities in most articles of food, so that the supply can be kept up without our specially eating them. But it is very doubtful if this is true of the nectar of flowers; and if not, it is easy to see why bees and butterflies should be so fond of excrements, which are rich in these mineral substances.

Some years ago we tried the plan of keeping a cow—a Chinese cow—and one of the ladies tried to

make friends with the animal (which did not take kindly to foreigners) by giving her salt; but the creature did not seem to know what it was. The Chinese do not give their cattle clear salt, but mix a very little with rice water to give them. There have been found some Indians who, when first given salt things, disliked them, saying it made their mouths smart. Nevertheless, we have high authority for holding that "salt is good."

Shanghai, China, Feb., 1887. J. E. WALKER.

Friend W., this matter has been brought up many times before, and you are, without question, right in regard to it. Unless bees find access to salt in some way, they are quite sure to get it from the sources named. In our apiary we keep a large glass jar full of salt water in the summer time. This is inverted on a grooved board or some other substantial substitute, so the bees have convenient access to it whenever they want it.

are bothered with the moth, while in communities in which there are no bees except Italians, the bee-moth is almost extinct.

Some of the friends have reported that their black and hybrid bees were more docile than their Italians. Perhaps those bees which they call Italians are a cross between Italians and Cyprians or Syrians. No one but an expert can tell the difference between Italians and a cross with those races. We did not hear much about the Italians being so cross until those new races were introduced in this country, except a few complaints where hybrids were called Italians.

G. D. BLACK.

Brandon, Iowa, March 21, 1887.

EMPTYING T SUPERS.

CAN MILLER'S PLAN BE SIMPLIFIED?

YOU say, Ernest, on page 249, "I want to ask if it would not be possible for you to simplify your device for emptying the Tsuper. Why not dispense with the hive-cover?" If a change could be made in making a Tsuper that would make each super cost 5 cents less, it would be worth studying over and experimenting about for days. In an apiary of 100 colonies it would be a matter of \$15 or so; whereas in the same apiary the saving of 5 cts. on each bearing-board would be a matter of only 10 cents. In other words, where only one or two articles of a kind are made, and to be used over and over again, the question is not so much how cheaply or simply can they be made? as, how can they be made so as to do the most rapid and satisfactory work? If I knew how to get up an arrangement that would cost much more, and yet take out a superful of sections in quicker time, I would cheerfully throw away the old arrangement and make new. It is possible the device might be simplified. I used the hive-cover, partly because I had a lot of deep hive-covers that I had thrown aside, because I could not afford to use such heavy covers. I am not sure, however, that it, or a box similar to it, can be dispensed with. The essential thing is the one side and end; in other words, the one corner of the box, with an arrangement to quickly and surely place the bearing-board in its exact position, and then as quickly and surely place the super in exactly the right position over the bearing-board.

The arrangement you propose is, so far as it goes, just about the same as I use, only I have mine fastened to the hive-cover. I would rather have the hive-cover out of the way if it would work just as well; and after you have placed the super properly on your box, I think you can make a little quicker work without the hive-cover. But the necessity for the hive-cover appears when you come to place the super, "being careful," as you say, "to get it squarely over." The best you can do, I think it will take you at least one minute to put the super in its proper place, and you will then be obliged to stoop and look under each super; whereas, with the hive-cover there is no need of being "careful," but in one second of time you can pull the super to its place, and be sure that it is just right. The bearing-board would be easier made, as you suggest; but I am afraid the edge of the board would split off in a little time; and, moreover, the board would be likely to warp.

C. C. MILLER.

Marengo, Ill.

ABOUT THAT REPORT ON PAGE 184.

ITALIANS AND HYBRIDS.

I DID not intend to convey the idea that Italians are better honey-gatherers than hybrids. All other circumstances being equal, I believe that the progeny of an Italian queen mated with a black drone will produce as much honey as Italians when there is plenty of honey to be gathered; but when honey is scarce, the hybrids are more apt to spend their time buzzing around the honey-house windows, or trying to steal from some weak colony. My hybrids were worked for comb honey, and the Italians for extracted honey, which will account for part of the great difference in the amount of honey gathered. The average would be 220 lbs., not 260 lbs. The 30 colonies of hybrids were wintered in the cellar, while part of the Italians were wintered in chaff hives. When the honey-harvest commenced, those in chaff hives were two weeks ahead of the others.

The following are some of the reasons why I prefer the Italian bees rather than hybrids:

1. Stability of features and characteristics. It is a well-known fact, that it is a very difficult matter to fix the characteristics of a hybrid or cross, in either the animal or vegetable kingdom. We might establish an apiary of hybrids of the first cross, having nearly the same markings and characteristics; but in a few years we should have bees in all the different degrees of purity, between Italians and blacks, and possessing all the different characteristics of the two races; while if they had been Italians, or any other pure race, they would, at the end of a few years, all have the same markings and characteristics that they had when the apiary was established.

2. Italians are proof against the bee-moth, while some hybrids are not. A few years ago, before I Italianized my bees, I had to fumigate my surplus combs, and the chickens breakfasted on the mutilated brood which the bees threw out during the night; but all that is changed. I do not think that I saw more than a dozen moth-worms in my apiary last summer.

3. The comb-honey that I bought of parties having black and hybrid bees was considerably damaged by moth-worms. I notice that friend France and others, who are extolling black and hybrid bees,

I give up, friend Miller; you are right. Your explanation, I think, clearly shows that the hive-cover, or something very similar, is simply a matter of necessity. These little minutes in the height of the honey-flow are too costly to lose, when a little additional expense of ten or fifteen cents possibly might save them.

CONTRACTION, AND HOW TO MAN-AGE IT.

ALSO SOME VALUABLE THOUGHTS AND SUGGESTIONS IN REGARD TO THE VITAL QUESTIONS BEFORE US.

FRIEND ROOT:—GLEANINGS for March 15th is at hand, and is so brimful of good and timely ideas that I am constrained to write and express my satisfaction. We are all much pleased with the glimpse you give us of your "great hive" filled with busy, earnest workers, and heartily wish you continued success and prosperity at the Home of the Honey-Bees.

In regard to taking bees from the cellar too early, Dr. Miller comes forward with a bit of his ripe and rich experience that ought to be well heeded. He is right in saying, "Better too late than too early." Surely if we have control of our cellar temperature, as we ought, the bees are much better there than outside, until settled warm weather. By the way, I am much gratified to see Dr. Miller and others leading you out of the woods on the comb-honey-super question; but I fear you are hardly clear of the shadows, so long as you cling to the 10-frame brood-chamber with super to match, and use an outside cover over the comb-honey arrangement. Are you not aware of the fact, that the great majority of our leading practical and progressive apiarists are abandoning the large brood-chambers of ten and twenty years ago, and using eight, and even less, L. frames for both comb and extracted honey? It behooves the editor of so spicy a journal as GLEANINGS to lead and not follow, in this progressive march.

Allow me to assure Dr. Miller, that the principle of contraction is permanent. It has "come to stay," but we have learned that we must have brood under the whole comb-honey super, and so we contract horizontally—the only true and logical method. I left over 50 colonies on five L. frames the entire season, from April to October, last year, and never had better or larger swarms, or got better results, than I did from these contracted hives. When put into winter quarters they were much stronger in bees than I care to have them. Now that you have indorsed and adopted the slatted honey-board, the bee-space above sections, and the plain board cover with square butting joints, you are traveling in the right direction, and will surely go the whole distance before you stop. Where hives are left unprotected in the sun, the outside cover is right and proper; but when a large shade-board, with air-space between it and cover, is used, the thin single-walled cases are cooler and better. Remember, that it is largely the inside heat of the hive that we want to escape, in hot weather.

Adam Grimm, you know, thought it necessary to slip supers by each other to provide this ventilation. A properly made square butting joint will not admit wind or rain, and, as Prof. Cook says, is the proper way to construct these joints. I could

not now be persuaded to again use a telescopic joint.

Friend Heddon has been five or more years ahead of us in this matter. I use the Heddon non-separator case, and find it cheap, strong, and neat. I also have some 200 of his new invertible wide-frame supers. These latter have many advantages over others, but are rather costly and complicated. I never did like wide frames, you know. It seems to me there is a great future for the tin T super. I shall try a few of them this season, and, if desirable, will use them largely hereafter; if not, I will return to the old-style Heddon case, which is hard to beat.

Terry's book on the winter care of horses, and the A B C of Potato Culture, ought to be in the hands of every bee-keeper and farmer, and we owe you a vote of thanks for placing them within our grasp. My 150 colonies are wintering nicely in the cellar, and loss will be slight. D. FURNESS.

St. Louis, Mo., March, 1887.

Thank you, friend F., for your kind words and kind suggestions. I am afraid we have been getting a little in the shadow since we stopped raising honey and confined our attention solely to raising bees and queens. There is considerable difference of opinion, even in this matter of contraction; but if we can cut our colonies down to half space in the brood-chamber, just before we work for comb honey, very likely a half brood-chamber, or something on the style of Heddon's latest hive, may be what is needed. I have recently had considerable talk with Prof. Cook and W. Z. Hutchinson in regard to the matter. Your large shade-board, with an air-space between it and the cover, is all right to keep off the sun's heat; but when we wish to protect the comb-builders during cool nights, my experiments indicated that the outer shell was very valuable. As Dr. Miller is with us just now, he answers a part of your letter as follows:

Friend Furness, as I happen to be at the "Home of the Honey-Bees," Mr. Root has kindly shown me your letter, and allows me a word of reply. You have put a thought, almost new, into my head. It is, that it is better to continue the bees quite late in the cellar, where we shall be certain about them, than to take them out where it will be uncertain, balancing between two possibilities—one, that they may be somewhat better off; the other, that they may be much worse.

As to the size of the brood-chambers, there is so much to be considered that it may be well to be a little careful about making changes. You may be right and you may be wrong about the matter of contraction; but I must confess that, from what I have read and from what I have experimented, there is much uncertainty in my mind on the whole subject. For those of us who use the regular Langstroth size of frame, or any thing near it, if we practice contracting we certainly do not need room for 10 frames during the time of contraction; but at other times it so often happens that I need more room than I am not sure I care to have my hives less than 10 frames. It is convenient, many times, to put an extra frame or two in the side of a hive where the bees may care for it. Then if only eight frames or less are in the hive, it makes it practically a side-opening hive; and whilst I could not tolerate a side-opening hive, I am glad to have

the advantage of easily lifting out the division-board and the first frame without disturbing any other frame. Then the 10-frame hive can have a tight division-board in the center, and be used for two colonies, and possibly you might like this if you tried it.

I also had most of my colonies on no more than five L. frames from April to October; but for all that, I want a hive capable of holding ten frames some parts of the year. C. C. MILLER.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

HOW TO FASTEN PIECES OF COMB IN THE SECTIONS.

IN a number of GLEANINGS in the latter part of last year the question was asked, "What is comb worth per pound, new and white, for starters in sections?" Your reply was, \$1.00,

but for trouble of fastening in. Let me say, it is very easy after you know how. In swarming, and in the honey season, I keep almost every day hot wax on hand. It is kept so by having a box as high as a lamp and chimney. Your wax being hot, take a turkey-tail or wing-feather, of good size. Your pieces of comb should be cut the size you wish. Your sections should be in the frames (I use wide frames). Dip the feather in hot wax, and paint the inside of the section. Next set the piece of comb on the feather. Holding the former with the left hand, draw out the feather. As the wax will set quick, the thing is done.

Your wax should be hot enough so the feather slips out easily and slick. You can put the pieces of comb in this way faster than you can put in comb foundation by any method. I have put in thousands, and never knew of one to drop out. I have thought for two or three years to give it to the public. I never saw any thing like it in print.

Brush Creek, Ia. B. F. LITTLE.

MOVING BEES NORTH AND SOUTH TO CATCH THE HONEY-FLOW, NOT PRACTICABLE.

Tell friend Baldridge not to think of that "North and South project" unless he wants to lose more than he makes. I know him to be an expert and able bee-keeper, for he had charge of a lot of my bees a few years ago, and I know of no one who would be more apt to succeed than he; but I would earnestly advise all contemplating such an enterprise, not to do it, for the extra labor, extra expense, extra care, extra anxiety, and extra risk can not be repaid, even if very successful in producing three crops of honey, which is at best doubtful. I have been through it, and I know from personal experience what I am talking about; and if I wished any one ill, I could not accomplish it better than by persuading him to do just what friend Baldridge proposes to do.

Belleville, Ill., Feb. 3, 1887.

E. T. FLANAGAN.

MIXING ALSIKE WITH TIMOTHY.

In some of the late articles in GLEANINGS on alsike, reference is made to mixing it with timothy for a hay crop. This is an important point, worthy of more attention than it has received, particularly from bee-keeping farmers, who do not care to grow it for seed. Our experience justifies us in recommending very highly a mixture of alsike and timo-

thy. It makes the choicest and most nutritious kind of hay. It is much better than red clover to mix with timothy, as it is still in prime condition to cut for hay when the timothy is just right, and is not damaged by rain more than timothy is. We sow a mixture of one-half peck of timothy and three pounds of alsike per acre. Never sow less than six pounds of alsike per acre, when you sow it alone for a seed crop. It will pay to sow alsike for bee-pasturage, even if there is an abundance of white clover, as it yields honey much more abundantly, and the bees therefore prefer working on it.

Urbana, O., Feb. 24, 1887. JOHN C. BARNETT.

CLIPPING QUEENS ON THE COMB.

It seems, to Mr. Axtell and myself, that catching the queens by the thorax or head, with the left hand, either with naked fingers or in a sack, is not the best way. We used to do so, but lost more queens than by the present way of taking the comb she is on. We gently set the comb in a slanting position against the back of the hive. When the queen goes to crawling up (never down), then quietly catch a wing with the left hand and clip it off is the best way. Sometimes it is more convenient to clip the other wing. Never hurry; one is apt to get nervous, and in a hurry; but there is no need of it. It is better to clip her on the comb with the bees, as she and they are more quiet. S. J. W. AXTELL.

Roseville, Ill., March 9, 1887.

A GOOD WORD FOR MRS. LIZZIE COTTON AND HER SYSTEM.

Permit me, through the columns of GLEANINGS, to make a few statements with reference to Mrs. L. E. Cotton, of West Gorham, Me., and her system of bee-management. I purchased of her, in the spring of 1884, her book, entitled "New System of Bee-Management," and I am ready to state that, if I could not get another copy of it, I would not part with it for ten dollars. I have followed her plan for two years, and have had splendid success, both in wintering and in securing surplus honey. I consider her feeder superior to any other arrangement I have yet seen. I am now feeding my bees with a view of increasing my number of stocks. I have nine, and I wish to secure from each of them two strong stocks. I think that her whole system of management is based on reason and experience. I am aware that she has been termed a fraud and swindler; but in her dealings with me she has been perfectly honest. W. M. ALLEN.

Trempealeau, Wis., Mar. 28, 1887.

I am glad to get such a good report from Mrs. Cotton, friend A., for there has been a great deal of dissatisfaction and fault-finding; and some letters are just now at hand, making complaint. These have, however, been referred directly to Mrs. C., at her own request.

THE BROWN BEES OF ARKANSAS: LARGE SIZE OF DRONE-CELLS.

There has been much said lately about the black, or brown bee. The brown bee of this country is certainly different from those described by Doolittle and others. I believe it possible that there is not a pure race of bees in the world at present; and very likely the different strains of black bees are more the cause of the different opinions and results than locality. To show you that these are not the little black bees, I by this mail send you a sample of these natural-built combs. You can see

the drone-comb is 1 cells to 2 inches, and the worker is in proportion. These bees are almost equal to the bumble-bee on red clover; are moth-proof, very prolific, and swarming is very easily controlled. I wish you could see some of the white comb honey that has been in the hives since last summer. I have handled these bees 30 years, and no sign of any disease has been among them. They are excellent honey-gatherers, and seal it quick and white. The first cross of these bees with Italians produces very beautiful two and three banded bees. If you wish I will give you a full account of these bees, with a sample queen and all. I think, to breed from one of these queens in your apiary would be the best and cheapest way for you to furnish good hybrids. I have only one Carniolan queen. Who wants her? F. C. MORROW.

Wallaceburg, Ark., March 21, 1887.

I will say to our readers, that the drone-comb which our friend sends has $3\frac{1}{2}$ cells to the inch. Ordinary drone comb has 4 cells to the inch; but if our friend will turn to pages 147-8 of the A B C book he will see that it is not uncommon to find drone comb with cells a little larger than usual. The worker-comb cells sent are about the same size as ordinary.

REVERSING; ZINC HONEY-BOARDS, ETC.

I have 7 swarms of bees wintering in good shape. They have been covered with snow till lately. As they are in chaff hives, the snow only made them warmer. I have adopted for future use a frame $9 \times 13\frac{1}{4}$, outside measure, combined with your reversing device, and am well pleased with them. Reversing, even in a four or five frame nucleus, with me, causes all the unsealed honey to be carried to each outside frame. The middle ones are then filled with brood. I hived one swarm on eight empty frames and one frame of brood, under one of your zinc honey-boards, and they made 104 lbs. of comb honey in pound sections. The bees also filled the hive so full of new comb and honey that, on the first of September, I had to take out two cards of honey, and give them empty combs for the queen to lay in. Others, just as good in every way, made only from 50 to 75 lbs. in sections. I shall use zinc honey-boards altogether this season.

Instead of a "Hill Device," I use under the cushion those thin, oblong wooden butter-dishes that they use at the groceries. They cost next to nothing, and, turned upside down on the frames, they work first rate.

C. A. RICKETSON.

Quincy, Branch Co., Mich., Feb. 11, 1887.

CELLAR WINTERING; PREVENTING INCREASE.

I put in the cellar last fall 92 colonies in fair condition, and to-day I have the same number in the best of condition, keeping them at 45° till Feb. 1, and now at 50° . My experience is, not too much ventilation, as it makes the bees uneasy.

HOW TO PREVENT ROBBING.

In the first place, I find it a good idea to set bees out of the cellar in the evening, as they get settled down by morning, and protect their hives better by so doing.

WORKING BEES IN SWARMING TIME, TO PREVENT INCREASE.

I first allow them all the room they want, giving them empty sections to keep them back from swarming, as much as possible. When the first swarm comes forth I take a half of its frames

and replace with empty ones; remove the full frames to the new hive, put in a division-board next to the swarm. When No. 2 swarms, put it in No. 1, first shaking No. 2 up thoroughly. When No. 3 swarms, put it into No. 2, and so on throughout the season. I find this the best plan to prevent increase, and is less work.

JOHN ELLINGER.

Hopkins Station, Allegan Co., Mich., Mar. 17.

NOTES AND QUERIES.

OIL OF ANISE.

WHY not get a small vial of oil of anise, and drop one or two drops on rye meal? I believe the bees could be induced to work with the anise even on sawdust. The bees love anise, and bee-hunters would do well to use it while hunting bees.

J. H. ROBERTS.

School Hill, Wis., Mar. 17, 1887.

[Friend R., oil of anise has been used for such purposes as well as for inducing bees to start work in bee-hunting. In the vicinity of our apiary, however, a little bit of refuse comb honey always starts the bees quick enough without any anise or any thing of the sort.]

WIDE VS. NARROW TOP-BARS.

I find 11-12 of an inch to answer my purpose best. I made a few last spring $1\frac{1}{2}$ in., and I find them a nuisance; $\frac{3}{4}$ is rather narrow, in times of rapid honey-flow; but at all other times they do well.

W. D. ANDERSON.

St. Thomas, Ont., Can., Mar. 21, 1887.

IN FAVOR OF TEN-CENT SECTIONS OF HONEY.

I think the 10-cent sections of honey would sell well here. I sold all my honey early and readily at $12\frac{1}{2}$ cts. per box, $4\frac{1}{4} \times 4\frac{1}{4} \times 2$; but I found, by what little experience I had, that 10-cent packages would have sold much more readily. I am located in an iron-mining country. They are a class of people who have not much ready cash, but can find 10 cts. when they could not be persuaded to pay 15 or 20 for a package that contained more in proportion for the money.

D. A. MASE.

Mt. Hope, N. J., Feb. 21, 1887.

HOW TO RAISE THE TEMPERATURE IN A CELLAR ECONOMICALLY.

On p. 186, Mar. 1, Mr. C. D. Black tells how to warm a cellar with water. I think I have a better plan. I have a large kerosene-lamp, holding about a quart, with a round wick, which I light, put on a shade, and set it in the cellar, placing shade-boards so that the light will not shine upon the hives. It will raise the temperature from 4 to 6 degrees in as many hours. My cellar is 12 by 14 ft. in clear.

H. J. NORTHRUP.

Lansingburg, N. Y., March 5, 1887.

COMB HONEY IN MARCH.

We placed upon our table, the 20th of March, section honey nearly capped, and the finest we have ever seen here. The flavor is the best, and thick, white, No. 1 honey. We have a quantity of this honey, comb and extracted. The frames we may extract later. This morning the last cold wave from the frozen hyperborean regions reached us—temperature 50° at sunrise. No bees out. There was a good rain the 20th. We are sending out some queens to Ohio and Pennsylvania. No loss heard of. The weather is cool and fine.

J. W. K. SHAW & Co.,

Loreauville, Iberia Parish, La., March 21, 1887.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: *Sheer Off, Silver Keys, The Giant-Killer*; or, *The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room*. We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apary, and a photograph of our own apary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

WINDMILLS AS A MOTIVE POWER FOR HIVE-MAKING.

IF there is one thing above another that makes a boy all out of patience, it is waiting for a thing when he thinks it ought to come *right away*. Every now and then that evening, Sam would go into the back yard and peer at the windmill on the barn, to discover, if possible, whether "that thing was going or not." He began to complain about there being no wind, and I am afraid he was almost inclined to find fault with Providence because it had not created a wind just when poor little Sam wanted to have it blow. Sam's mother remonstrated with him, and endeavored to tell him that he must learn to be patient, and not to find fault with the weather. She explained to him how he was finding fault with God.

Just before Jimmy left that evening, he suggested to Sam that they attach a bell to the shaft of the windmill in such a way that, when the latter started to run, the bell would tingle. No sooner was this suggested than the boys put the idea into execution; so just before Sam went to bed he stepped out into the back yard again, and listened and listened in vain for the tingle, tingle, tingle. After he went to bed his mind was full of windmills, and, with his thoughts thus occupied, he went to sleep. As all boys are apt to do when their attention is centered on one object, just after going to sleep Sam began to dream, and he thought he was waiting for the wind to blow, when all at once it seemed to him he heard the tingle, tingle, tingle. The note was so musical to him that it wakened him suddenly from his sleep. With a bound he struck the floor, stuck his head out of the window, and listened; but "nary a tingle" was heard on that calm clear night. He heard the croaking of the frogs (for the night was warm), and peered anxiously over

toward the barn. But the windmill stood still like a ghost, apparently mocking him. He looked at the moon, and imagined that he saw a broad grin on her round full face. "Only a dream," Sam muttered to himself, and with this he proceeded to his bed.

The next thing Sam knew he was awakened by the crowing of his big Brahma rooster; and as he raised himself in bed, he saw that the gray light of morning was creeping in at his window. Of course, Sam got up and looked toward the barn; but no wind and no tingle. "Did you ever!" said Sam to himself. He hurriedly dressed himself and went down. As he came out into the back yard, Jimmy breathlessly greeted him, and asked him if he had heard any tingle during the night.

"No," said Sam grumblingly.

"Well, there is just a little wee mite of breeze, anyhow," replied Jimmy, inclined to take courage.

"Well, I can't feel it," said Sam, in a tone that indicated that he didn't believe the wind would *ever* blow.

Sam felt irritable, and, to make matters worse, his sister Mary felt in an uncommonly good mood for teasing him at breakfast that morning.

"You can't make your windmill go," said Mary.

"I could if there were wind," retorted her brother.

"Never mind, dear Sam; just go and get a couple of old smokers and blow on your windmill."

"Ma, make her stop," said Sam indignantly; "she is all the while a teasing and bothering me."

Sam's face began to pucker up for a bawl, whereat even Mrs. Green could hardly refrain from laughing, to say nothing of Mary. A hot tear trickled down Sam's cheek, and he inwardly resolved that the windmill *would* go. His father consoled him somewhat, saying that when he came in he noticed a little breeze blowing from the west, and he felt quite sure there would be sufficient wind by noon.

Jimmy and Sam started for school. At recess, a crowd of boys gathered around the two famous windmill-builders.

"Your windmill didn't go, did it? I knew it wouldn't, and I told you so last night," said Jake. "I'll bet you five dollars you will never be able to make it go," he continued.

"Humph!" said Sam, "you never had a cent in your life, and you haven't gumption enough to whittle out a paddle to kill bumble-bees with."

One or two sided with Jake; but the most of the boys were greatly interested in the enterprise. There was more or less talking kept up between the two factions, until quite a heated discussion grew up as to whether that windmill would run or not. Jim was just on the point of "licking the stuffing out of Jake," or "teaching him a lesson or two to make him mind his own business," when the school-bell rang for the close of the recess. Although the crowd of boys had just begun to yell "fight!" "fight!" in anticipation of some fun, they dispersed.

After school was out, the two boys noticed that there certainly was quite a breeze; and if the windmill would run at all it would run then. They both started on a double-quick trot for the scene of the windmill, followed by a number of the boys. When they reached the street, Ted met them with the joyful intelligence that the "wheel was goin' round and round like every thing." Sam and Jimmy cast one satisfied look at Jake. The latter did not appear to enjoy the news very much. When the boys reached home, sure enough the thing was "going like split," as Jimmy expressed it. The joy of the two boys knew no bounds, and all the fellows seemed to share with them in their pleasure, save Jake and one or two of his companions, who were starting down street by themselves. Jake was mad to think "that silly cur Jim had threatened to 'lick' him," but "he would show him whether he could or not, when he got him alone." Jimmy, however, now that the windmill was running, felt no ill will toward anybody.

The two proprietors of the bee-hive factory had as yet rigged up no saw-table, nor had they even ordered a mandrel; but as they desired to test the power of their windmill they lugged Mr. Green's grindstone up the flight of stairs into the barn loft. They had no belting, so they used common clothes-line instead. Just as the boys were about to connect the grindstone to the windmill, Sam's mother called out that the last bell for the afternoon school was ringing, and that they must both hurry. Sam begged piteously that he might be allowed to stay out, and Jimmy said that his mother wouldn't care anyhow; but Mrs. Green insisted that both the boys had better go to school; and when they came home in the evening they would enjoy their experiments so much the better. With reluctance they obeyed.

To be continued May 15th.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

A MULE STUNG TO DEATH.

I write to let you know about an accident that happened the other day. A pair of mules ran away, and ran to a house close by. The bees were in the yard. The mules ran over a bee-hive, and the bees stung one of the mules to death, and the other nearly so. Our bees are doing finely; but if it does not rain soon they will not do much.

THOMAS E. WILLIS, age 10.

Jonah, Williamson Co., Tex., Mar. 26, 1887.

Thanks, friend Thomas. This time it was a poor mule that was the object of the bees' wrath.

POLLEN FROM CEDAR AND HAZEL.

My pa has 85 colonies now; 25 died last winter. They are all doing well this spring. They began carrying in pollen about two weeks ago from cedar and hazel. The pollen is red which they get from cedar, and yellow from hazel. Pa says it is

the first time he ever heard of bees gathering pollen from cedar. I have one swarm of bees. Pa has put in about 1500 grafts this spring. He is thinking of going into the nursery and bee business together. We have had a very rainy spring so far, and the bees have not had much time to work. We have some very fine Brown Leghorn hens.

HOWARD ALLEN.

Snohomish, Wash. Ter.

REVIVING FROZEN OR CHILLED BEES; SAW-TABLES.

Winter before last we had a colony freeze, and in three or four days the sun shone warm and we got a handful of them and put them in the sun; they came to life, and we gave them some honey. They ate it, and flew away. This proves that bees will sometimes come to life after being frozen. We have 15 hives of bees. We take GLEANINGS, and think there is no better paper. Our country is not the best for bees. The honey-crop is uncertain. We bought a hive from you in 1883, but have since made a horse-power saw and make our hives. I notice in GLEANINGS for Feb. 15, 1887, an improvement on saws, and I think there would be a still greater improvement if Mr. Warner would attach the same device to raise and lower his table.

WM. C. GREER, age 13.

Paris, Tenn., Mar. 20, 1887.

Thanks for the experiments you give in regard to bees supposed to have been frozen. Some experiments were given in our back volumes, I believe by friend Doolittle, where bees, exposed to a temperature below the freezing-point for 24 hours, could be revived by warmth and then feeding; but he found that where they were kept frozen for 48 hours, they were past recovery. This same matter is touched upon in the A B C book, under the head of "Wintering." In sending out queens during the early spring months, we have to tell our customers that, should the bees arrive at their destination apparently dead, they are to place them in a warm place and allow them to remain for a few hours. Where they have been chilled, or even frozen, in this way for a few hours, they will soon revive by the application of warmth. About the first of last January we received a queen from Nellie Adams, Sorrento, Fla. The queen clerk thought that the queen and her bees were surely dead. They were, however, placed over one of the steam-pipes, and in the course of two hours they were "alive and kicking."—It is true. Warner's chain and screw attachment could be fastened to the table in such away as to raise it, but Mr. W. says it would be no advantage. Screws for raising the table were used years ago, but I believe now are generally discarded, both because they were too slow to operate and because they would not hold the table rigid enough. The device we have for raising and lowering the table is much better, we think, for hive work than any thing else. It can be quickly raised and lowered, and can be clamped securely so as not to jar or move. In making hives it is very important that all parts of the saw-table should be strong and rigid. Well, friend Willie, we think we shall have to send you a panel chromo. These little facts are just what we are after.

FEEDING CHEAP SUGAR.

My papa has about 20 stands of bees living. It is a good idea to feed bees New-Orleans sugar in the winter, to keep them alive. Papa claims you as a friend of his.

STELLA JENKINS.

Smithville, Mo.

BEES GATHERING HONEY IN ILLINOIS BY THE 14TH OF MARCH.

Pa has 23 swarms of bees. They are all working strong, and have made some honey for a couple of weeks. This is the earliest they have ever gathered honey. Pa thinks they are working on maple. Our bees are hybrids, and are very cross. Ma has been stung three times, but it didn't amount to much.

JOSIE NEFF, age 12.

Lewistown, Ill., Mar. 14, 1887.

A CHEAP BEE-VEIL.

I live near Bradford, White Co., Ark. My pa takes GLEANINGS, and I like it very well, especially the children's page. This spring we started with two swarms, and increased them to 12 strong colonies. To make a cheap bee-veil, take mosquito-bar and cut a piece long enough to go over your head with your hat on, and draw it tightly around your neck, and the bees can't sting you.

ALBERT REMLEY, age 14.

Bradford, White Co., Ark.

BEES AND CARP.

Pa has 51 colonies of bees. They are all in the cellar. We have a carp-pond, and we found two large dead carp frozen in the ice, after our thaw in January. Pa says he is afraid they are all dead.

Constantine, Mich. EDNA RIFENBERGH, age 11.

Tell your pa not to borrow trouble, friend Edna. We find more or less dead fish on the surface of the pond every spring; but when we commence feeding them we find there are enough left to make things lively. I do not know why they die this way, unless it is because the water is too shallow. We have arranged to make our pond quite a little deeper hereafter.

KEEPING HONEY FROM CANDYING.

Pa has been keeping bees for four years. He has 23 colonies in good condition. If they pull through all right they will make things lively here about swarming time. We have never had a pound of candied honey in our house since we kept bees. Mamma believes if honey is put into jars or cans and kept in the third or fourth story of a building it will remain in a liquid state the whole year round. Mamma would like to know how to make honey-jumbles.

JOSIE NEFF, age 12.

Lewistown, Ill.

Tell your mamma, Josie, that we think it makes more difference as to whether she seals up the jars or cans as we do canned fruit, than whether she puts it in the third or fourth story.—I am sorry to say the manufacturers will not give us the recipe for making honey-jumbles. They are made at a very large factory.

HOW RAY MAKES MONEY.

I made half a dollar from papa. He told me he would give me five cents for every swarm I saw. He saw a swarm of bees, and he went up and hid among the bee-hives. I saw it too, and I went up and screamed and hallooed a long time, and Hattie told me that pa was up there, and he pulled out

half a dollar, and five cents. He told me to take my choice, and I took the half-dollar and put it into my bank. Mamma has a great lot of chickens, and every time she goes to feed them she talks to them.

Waynesburg, Pa.

RAY INGRAM.

Friend Ray. I do not believe I would say that you *earned* half a dollar in the way you mention, but, rather, that your papa *gave* it to you, and I presume he knew by past experience that so good a boy as Ray would make a good use of it, and he therefore considered it a safe thing to do. How is it, Ray? Didn't I hit it about right?

A REPORT BY A LITTLE GIRL.

We have kept bees for about 35 years, but never gave the business any special attention except for the last ten or twelve years, producing but little honey more than for our own table. Lately the number of colonies has been increased; and last spring, at the commencement of the honey season, we had 140 colonies.

We have two bee-houses; one is 11 x 52, and the other is 11 x 24 feet. Both are built mostly under ground. One is built of stone, and the other of timber. The bees winter nicely in either of these houses. We have now 212 colonies, and papa said they were in fine condition. We work exclusively for comb honey. The yield of honey last year was small, being only 9000 lbs., but this is easily accounted for from the fact that more than half of the bees died during August and September of the previous year, leaving them very weak in the spring.

We use the Langstroth hives. Our bees are blacks, hybrids, and one colony of Italians—mostly hybrids.

LOU MAY RANDALL, age 11.

Big Rock, Ia., Feb. 10, 1887.

HONEY FROM THE COTTON-PLANT; THE ITALIANS GATHERING WHEN THE BLACKS ARE DOING NOTHING; THAT NEW KITE.

Papa's bees came through the winter all right. They have been bringing in pollen more than a month. They are gathering some honey now from peach-bloom and willow. Last spring was a failure in honey. The late freezes killed all the flowers. Papa's bees are part Italians and part blacks. When the cotton bloomed, the Italians made enough for their own living, and some to spare, while the blacks made nothing.

Brother Clay's kite that he got from you was a perfect success. Papa put some strips of paper on the middle corners, to imitate wings. They add to its beauty a great deal. It flies over 200 feet. Clay takes pieces of paper, makes a hole in the center, puts them on the string at his hand when the kite is up. They will run up to the kite. The kite dives and looks like a hawk after a bird. Tell Caddy and Blue Eyes that I make a house-vine with a sweet-potato put in a small bucket or can, partly filled with water. All I have to do is to keep water in the can and train the vine as it grows. It grows very fast after it gets a start. I can't get one to make a long vine after the potato has been bedded out. Can any one tell me why? Keep them inside the house. Put a little bat of cotton in a glass of water, sprinkle oats thick on it. They will grow and make a pretty sight. Mamma has that vinegar-plant you ask about on page 212. You describe it exactly.

MATTIE F. DILLEHAY, age 12.

Wilford, Texas, March 24, 1887.

TOBACCO COLUMN.

THE VALUE OF THE TOBACCO COLUMN.

I HAVE just got through running back over the Tobacco Column, and footing up the number of persons who have, by the good influence of GLEANINGS, quit the tobacco habit. I had two objects in view in footing up the list: 1. I wished to use the item in some of my public discourses, to show what is being done by one man to induce his fellow-men to discontinue a much worse than useless habit; 2. I wanted you to know that your "labor was not in vain." I counted only those who indicated plainly that it was through the influence of GLEANINGS that they had quit it. Here is the list, if I have made no mistake, and I think I am right:

Whole number quit—446. Number who had quit, but broke the pledge—18.

Is not that encouraging? Just think! What a little army of men—enough to fill a large hall! A large number of those reformed, I noticed, had families; and I verily believe that, through those fathers, we can count at least on 446 boys belonging to them that will be led on to manhood without acquiring the pernicious habit. Quite a number testified that they had used the weed from 40 to 60 years. I think we may all wish the good work a hearty God-speed, and that still many more may yet be induced to join the anti-tobacco army through your efforts.

D. E. BRUBAKER.

Maxwell, Story Co., Ia., Mar. 7, 1887.

We are very much obliged to you, friend B., for the pains you have taken to count up the number who have given up tobacco, and I agree with you that this number does not probably represent all the good that has been done. A great many have given up tobacco just because of these letters, and have never said a word about it. A good many whom I have met at conventions have told me as much. The idea of giving a smoker seems to have struck the matter in a pleasant way, and people have been stirred up to a sense of duty by it, without feeling as if they had been either reproached or censured.

TOBACCO A YOUNGER BROTHER OF ALCOHOL.

I am glad you still hold on to the Tobacco Column. Undoubtedly you are doing untold good that eternity alone can reveal. I believe tobacco is doing about as much harm in this world as alcohol. About \$900,000,000 spent for alcohol in the United States, yet its use is not so popular as tobacco. Why is it that almost every person who drinks, first used tobacco in some form? Physicians say it is because tobacco creates a desire for stimulants. About \$600,000,000 spent yearly in this Christian country for tobacco, and but \$5,500,000 for both home and foreign missions. Does this look consistent for a Christian nation? What answer will the Church make to God—what shall we individually make, when asked, "Where is thy heathen brother?"—856,000,000 who have never yet heard of Jesus? Do not our small givings to send them the gospel look as if we answered, "Am I my brother's keeper?" And will God hold us guiltless? Nay, verily; in that we have slighted our Savior's last command, to go into all the world and preach the gospel to every creature.

Many say, it is so hard to leave off tobacco. That is the reason they do not give it up. But there have three cases come under my observation within the last two years, of old men who have used it for 20 to 25 years, leaving it off when they found it was killing them. One of those men found he could not do it in his own strength, and took it to God in prayer. He claims the appetite was entirely taken away. On another, three cancers started on his head and face. The doctor said it was from the use of tobacco, and said it could not be cured unless he left it off, which he did immediately. The third one is improving in health. If old men can quit its use after using it so long, why can not any one who has a will to? The reason most people use it is, they do not think it really bad, and young men and boys think it manly because their seniors use it.

Roseville, Ill.

MRS. L. C. AXTELL.

A FRIENDLY LETTER FROM ONE WHO HAS USED TOBACCO 46 YEARS.

I am a beginner in bee culture. A year ago I bought a hive of Italians of Rev. Mr. Whitehill, of Cuba, and got a fine swarm from them. Last fall I found and secured in good condition a wild and very strong swarm of black fellows, so now I have three. Rev. Mr. Whitehill kindly loaned me his copy of the A B C of 1882, and I find it a necessity next to bees themselves in bee-management. I write to inquire if you have a later and revised edition. If so, I wish to procure for the elder the improved and take his old copy. It is good enough for me, and I guess he has read about all of the sense out of the old copy. A lady friend handed me a copy of GLEANINGS. I like the tone of it very much. Your Tobacco Column seems to me a novelty. Now, if you wish to risk a Clark smoker on an old tobacco-smoker like me, who has indulged the habit 46 years, send it on, and I will accept your terms. If I don't quit smoking I will pay for the smoker; and if I do quit, and know that I have effectually and for ever quit, I will also pay for the smoker.

W. D. STEWART.

Cuba, Mo., Feb. 14, 1887.

Well, friend S., you are the first brother, I believe, who insisted on paying for the smoker, no matter what the result might be. You pay for it if you quit smoking, and you also pay for it if you don't quit smoking. I am to be the gainer, in either case. Come to think of it, however, I believe, dear brother, you will be the gainer also, if you think you will use less tobacco than you did before, and my faith is *pretty strong* that you will never use it at all any more.

A USER FOR 33 YEARS OUT OF 40.

Please send a smoker to your humble servant. I have quit the use of tobacco, having used it 33 years out of 40. If I ever resume the use of tobacco I will pay you for the smoker. This is something I don't like to say. I am not trying to quit, but I have quit.

T. R. DELONG.

Oxbow, Neb., Mar. 4, 1887.

Mr. Dock Connon, of Madisonville, tells me you gave him a smoker to quit the use of tobacco. As I am handling bees on a small scale, I need a smoker. If you will send me one I will quit the use of tobacco; and should I fail to keep my promise I will send you the money for the smoker.

Middleton, Tex., Feb. 6, 1887.

L. S. WILMER.

I have quit the use of tobacco; if I use any more I will pay you for the smoker. J. E. CLARK.
Hartville, Ga.

I have quit using tobacco. If I ever use it any more I will pay you for the smoker you send.
Hartwell, Ga., Feb. 25, 1887. C. C. WHITE, JR.

Please send Henry Stevens a smoker. He quit using tobacco over a year ago, and proposes never to use it again. If he does, I will pay for it.
Belle Rive, Ills., Mar. 7, 1887. D. B. COX.

I will give up the use of tobacco; and if you send me a smoker, and I should break my promise, I will send you the money for the smoker. J. SAMS.
Postville, Ia., March 2, 1887.

I am resolved to quit the use of tobacco, if you will send me a smoker; and if I ever use the weed again I agree to send you full value for the smoker. HAM GREEN.
Fayette Corner, Tenn., Feb. 21, 1887.

I have stopped chewing tobacco, and will promise you never to do so again. If you will send me one of your smokers, and I commence using the weed again, I will send you price of it. G. W. HICKS.
Milan, Tenn., Mar. 8, 1887.

HEALTH IMPROVED.

I have quit chewing tobacco after using it about 25 years, and I feel better. I think it did me a great deal of harm, so I make the usual promise, if you send me a smoker. GEO. W. WHITNEY.
Bettsville, O., Mar. 1, 1887.

WILL KEEP THE PLEDGE.

I promise never to use tobacco any more. If I do, I will send you 70 cts. for the smoker. If you see fit to send me the smoker I shall be pleased, and will keep my pledge. B. FREDERICK.
Jerry City, O., Feb. 26, 1887.

INFLUENCE OF A FRIEND.

Will you please send a smoker to Silas Mitchell, of Jordan, Ky.? He has recently quit the use of tobacco, and says if he ever uses it again he will pay the usual price for smoker. I vouch for him. W. B. CLOYES.
Jordan, Ky., Mar. 9, 1887.

NEVER TO USE IT AGAIN.

I have stopped using tobacco, and will promise you never to use it again. If you will send me one of your smokers, and I commence using tobacco again, I will pay you for the smoker. J. H. POUNDS.
Milan, Tenn., Mar. 6, 1887.

NEEDS A SMOKER.

I will abstain from the use of tobacco. I have just bought some Italian bees, and need a smoker. If you will send one I will agree to pay the price you ask. F. J. BUSER.
Glenn's Valley, Ind., Feb. 26, 1887.

A BARGIAN THAT IS BINDING.

I am a young beginner with bees. I have always used the pipe or cigar, but I have become disgusted with tobacco, and it is likewise such a bad and mean habit that I shall never use it again under any circumstances. If you think I am entitled to a smoker, send me one; and if I ever catch myself using the weed again I will pay you one dollar for it; besides, one hundred dollars more to any one charitable institution you may name. G. O. SALZMANN.
Harmer, O., Feb. 22, 1887.

FIRMLY RESOLVED.

I have been chewing tobacco for a long time, and quit some time ago. I have now firmly resolved never to use the weed again. If you think me entitled to a smoker, please send it; and if I ever take up the habit again in any way I will pay you for the smoker. JACOB HOPPLE.
Cocolamus, Pa., Feb. 22, 1887.

A LITTLE GIRL'S INFLUENCE.

My pa began to read GLEANINGS last spring. He has the A B C, and likes it real well. He has 50 stands of bees. He has quit the use of tobacco; and if you will send me a smoker I will see that you get your pay for it if he ever commences again. LIZZIE BILES.
Homet's Ferry, Brad. Co., Penn., Mar. 3, 1887.

"A USELESS AND EXPENSIVE HABIT."

I never used tobacco except in smoking, and I quit that last fall—not because of your offer, but because I considered it a useless and expensive habit, totally devoid of any good whatever. Now, you can suit yourself about sending the smoker. W. J. CULLIMAN.
Mt. Sterling, Ill., Jan. 21, 1887.

THE TOBACCO QUESTION.

You give a smoker to all who quit, and promise to hold out faithful, which is very good. I have been trying to educate my boy to never commence the vulgar practice. So far he has obeyed both me and my better half. He is now nearly fifteen years old. His name is Curtis W. He goes to school the most of his time, and studies all the common branches. Also my better half's brother's boy, Medford Whistler, a few months younger than Curtis. He has yet not commenced using tobacco in any way. I think if any are entitled to a gift it is the young men or boys who never chew or smoke. I will say, if you think these boys worthy of a smoker, send them one apiece; and if they commence, then you will get your pay for them. I will now let Curtis write a few lines. H. D. BRUBAKER.

I never expect to use tobacco. We have one stock of Italian bees, which we put into winter quarters last fall. When should upward ventilation be stopped? Should it not be done now? Father attends to nearly all the bees in this vicinity. CURTIS W. BRUBAKER.

Irvin, Ind., Mar. 7, 1887.

I am much obliged for your kind letters; but if we offer a smoker to every one who does not use tobacco, it would be virtually offering them broadcast to almost every one. Now, I am not afraid to give away this vast sum of money if it would be productive of good; but the probabilities are that it would not, or, at least, not very much. As it is now, the smokers we give to tobacco-users are given as a sort of pledge. If they use it any more, they pay for the smoker. Tell the boys that Uncle Amos appreciates their good behavior, and is glad to know that they have been so well brought up. If they go on in the way they are going, they will save money enough to pay for a great many smokers, besides having good health and a clear conscience.—Upward ventilation should be mostly stopped now, though it depends upon the weather.

OUR HOMES.

If thine enemy hunger, feed him; if he thirst, give him drink.—ROM. 12: 20.

I DO not know, my friends, but that I shall put a little different construction upon this verse from the one usually given to it; or, rather, may be I shall start off on a different line of thought. Missionaries have long since decided that the first thing to be done toward winning souls is to *feed* the heathen, or win their confidence and friendship by giving them something pleasant to the taste and satisfying to their hunger. And it is not only the heathen who are won by something good to eat, but it is the street Arab of our cities; and, in fact, the bad boys of our towns and villages may often be won from evil ways by something pleasant to the taste or satisfying to their hunger. Somebody has said that the shortest cut to a man's heart is down his throat, or something to that effect; meaning that, if he is to be won to better things, or to good nature, if you choose, the quickest way to do it is to give him a good palatable square meal; and, indeed, I have discovered that the same law runs through all the animal kingdom. If you want to win the confidence and affection of your horse, give him choice morsels whenever you come around him—a little salt, a little sugar, or an apple; in fact, almost the only method of leading animals to go where you want them to go is by rewarding them with something they love to eat. My Brahma chickens I have so often told you about have feed and drink right where they have constant access to it; and I have discovered that this state of affairs is a constant bar to close acquaintance. They do not care to be handled or meddled with so long as the grain-hopper and the water-fountain never need replenishing. Let one or the other give out, however, so that the chickens get hungry or thirsty, and they will walk right up to me, let me pick them up, or do what I please with them, especially if they can remember sundry handfuls of corn given them at such times, or a panful of nice clean water when the water-works happen to be temporarily suspended. How I do love to see them enjoy their food! I also love to see them enjoy nice clean pure water. Somebody has said in sarcasm, that, when the chickens lift their heads toward the sky, and wink their eyes as they let the delicious cooling draught go down their throats, they do it in praise to the great Creator of all things. No doubt they feel thankful when fed, and supplied with nice water; but I am unable to say whether their little brains can compass a thought so great as to include the Author of their being or not.

I wonder if you begin to suspect that I am going to talk about food and drink this time. Well, that is to be one of the principal objects of my talk. The Master said, "Do good to them that hate you;" and as if somebody might have asked the question, "How shall we do good?" Paul placed first and foremost, food and drink. Many

of our young people in prayer-meetings, and in conversation with their pastor or other spiritual advisers, say, "How can I do good to anybody?" May be you, my young friend, who have sometimes felt a burning desire to follow in Christ's footsteps, have asked yourself the question, "How shall I do good to anybody?" I answer, "In the line of food and drink." If you want to win your papa to Christ, and wish that he may love the Savior, study his wants and tastes, and assist mamma in providing promptly something nice for him to eat, or a cool refreshing drink when he is too tired to go after it himself.

Now, skipping by these domestic relations and taking the world at large, whenever the question comes up, "How shall I win souls to Christ? or, how shall I show to God that I love his creatures and my fellow-men?" my answer is, "Through the medium of food and drink." Some way it has seemed to me that the world is careless and negligent, and I have sometimes thought actually selfish, in this matter of food and drink. We pay big prices for a meal of victuals; yes, it seems to me prices far beyond what we pay for other comforts proportionally. No one, I believe, thinks of furnishing a meal of victuals to the traveling public for less than 25 cts.; and even in a country town, if you get a meal that is decent and nice, the price is 40 or 50 cts. In towns a little larger, it is 50 or 75 cts.; and in our cities it comes up to 75 cts. or \$1.00; and I am told that even \$1.50 for a single meal is sometimes asked, but I have never in my life paid over a dollar. Those who receive money for feeding the public, should, of course, render a fair equivalent for the amount of money received; but, my friends, there is something that humanity is hungering and thirsting for, that money can not buy. It is friendly and home-like service. It is the kind of service that the mother gives to her children because she loves them. One of our great workers among the lost ones in our cities once said, "Never give any thing to any one, without breathing a prayer that God may bless the gift;" and I think it should be so when one who loves the Savior furnishes or assists in any way in providing food for the hungry multitudes. Jesus set us an example when he passed the bread to his disciples. It was his custom to bless it and give thanks.

Sometimes good may be done by making a gift of food. Drinking-water is always a gift, so far as I know. In fact, I have never heard of any one charging for it, and I am sure that great good has already been done by the Women's Christian Temperance Union, and other benevolent societies, in providing ways and means to furnish refreshing water wherever hungry and thirsty mankind may be expected to long for it. How I do love neat and tasty drinking-fountains and bright clean bubbling springs! Why, I have often felt that I would go miles just to look at one, and I am glad to notice that Blue Eyes is just beginning to share her papa's enthusiasm in the matter of springs of water. I remember one about twelve miles from my home that gushes out from the rocks near the summit of a very long

high hill. I would to-day give \$1000 cash down for such a spring as that, at the Home of the Honey-Bees. Of course, I would make use of the water for other purposes than for drink. My friend, do you know of anybody this moment who is thirsty? Is there any one who would thank you for a drink of cool water? I do not mean that you should take a dipper and carry it to them just at this moment, but that you should provide a permanent drinking-place that will perhaps refresh the passerby, not to-day only, but generations to come, as well. You want to serve Christ, and you do not know how. Serve him by paying five cents for a bright new tin cup, and then put that cup where it will be used. If it gets battered up, or is lost or stolen, rejoice that it is being used, and then put another in its place. When the Master said, "Whosoever shall give to drink unto one of these little ones a cup of cold water only, in the name of a disciple, verily I say unto you, he shall in no wise lose his reward," I believe the thought included furnishing drinking-water to the thirsty in just the way I have indicated. A great many times, fresh water placed on the table at meal time will make those who gather round the family board feel happy and grateful. I have often heard my father say, when asked whether he would take tea or coffee, that he would much rather have a glass of fresh water. It used to be my office to bring water from the spring, in a little pail. Dear young friends, how many dollars do you suppose I would give to have the privilege of bringing my old father a drink of cool water this bright warm spring day? Do you ask why I talk about things which are no more possible in this world? Because it is possible for me to give a drink of water, even now, to somebody's else father, and it is quite likely that you, my readers, can have this privilege, right this minute, of making your dear old father look happy and thankful by carrying him a cool refreshing drink now; and Christ has said, "Inasmuch as ye did it unto the least of one of these my brethren, ye have done it unto me."

Do you suggest that I am talking about giving food and drink to friends instead of enemies? Why, my friends, if these kind offices were performed oftener to friends, they would remain friends and not change to enemies. I have known of people to feel quite hard, and may be bitter, toward those who should have been their friends, because of carelessness in this respect. A tired man sits down to a meal, and, through carelessness or indifference, perhaps he is not waited on as he should be. He lets Satan whisper to him that his family do not care for him; that they are all selfish, and bent on their own comfort. May be by and by he says something ill-natured because of this neglect, and enmity springs up in the family circle. I suppose that not many of us have what might really be called enemies; and may God grant that there are no *real* enemies under the roof that covers what we call home; but for all that, I do know there are hard, uncharitable, and unkind feelings, many times, cherished by the inmates of

these our homes. The Bible says we are to feed an enemy; how much more, then, should we feed a friend or one related to us by the ties of kindred!

I do not believe that, as a rule, it is the thing to do to furnish *food* without equivalent. I do not believe in giving that tramp who stops at our doors, pie and cake. In fact, I think it will harm him rather than do him good, because it would encourage him in a sort of dependence that is exactly the opposite of manliness; but when we receive *pay* for any thing in the line of food, I do think it behooves us to try to honor the Master by giving good measure, good quality, and have it in nice and attractive shape, as the market-gardeners and fruit-growers tell us so much about. A great part of the business of our every-day lives is in buying and selling something concerning food and drink. If it is your business to wait on the table, say to yourself constantly, over and over, that in ministering to the wants of those who are looking to you, you are serving the Master. Not only see to the food, but provide your guest with clean water and a neat tidy wash-basin, and a refreshing-looking napkin, that he may bathe his hands and face, as a preparation toward the full enjoyment of his meal. This last remark hits me right squarely; for since our lunch-room has been prospered until now it is crowded almost every day to its full capacity, we have never yet arranged a convenient place for the traveling public to wash, without going upstairs. Of late years I have traveled quite a little, and one of my enjoyments in traveling is to see how much this matter of the comfort of the traveling public is made a study—or, if you choose, I like to notice how much Christianity there is about the hotel-keepers, the girls who wait upon the table, and others who serve at such a place. The waiters at our hotels are a class that is on my mind a good deal of late. One of the bee-friends made the remark at Albany, N. Y., that it was ever so much pleasanter to him to be waited on by women than by colored men. At the large hotel in Indianapolis they had, as a matter of course, colored waiters. We were kept waiting for from fifteen to twenty minutes for our meals, after giving our orders, when some one at the table suggested to one of these colored waiters that he had business that was hurrying him. The only reply he got from the waiter was, "Well, I guess you will wait till you get it." Another colored waiter did not bring the ice cream I ordered, and I suggested to him his delinquency. His reply was that he could not remember who ordered it, and so *he ate it himself!* Now, such things are unpleasant. Of course, one might complain at the desk, and, in fact, a card was appended to the bill of fare, *asking* guests to do so, from which I inferred that there was often need of it. At this place we paid the highest prices, and had a right to expect kind and civil treatment. Do you want to know what kind of waiters I like? My friend, it is Christian women. I do not know how many Christians can be found at our hotels and restaurants as waiters, but I do feel as if it

would be a privilege to me to help to pay Christian men a big price for such services, and then I would have some measures taken to demand that these waiters bestow Christian treatment and Christian courtesy; this latter point might be a hard matter, but I think I see indications already that it is coming. I notice it in the daily papers, and I notice it in the daily talk. In the near future, I think the cause of Christ is going to be magnified, and his name is going to be glorified. I know it is a fact, that women-waiters in many public places are obliged to hear things that are unpleasant, and many times they are censured when they are not at all to blame. Sometimes they are bantered; but I think a wise and discreet woman can, as a rule, by her bearing, pretty quickly check or discourage any of this latter. I have wondered many times how many of these women are in the habit of attending weekly prayer-meetings. Do their employers so arrange their work that they are permitted to go? and when they have guests who are hard to please, do they have the cheering influences of Christ's presence in their hearts, to help them bear the trials of every-day life? Is it possible that, among the readers of GLEANINGS, there is one who waits on the table, for the great traveling public? If so, may God's blessing rest on such a one; and may she realize how much it is in her power to work for the Master, perhaps not directly by serving her enemies, but she surely will have opportunities, almost daily, of feeding those who are enemies of the Savior; and shall we not consider *this* a great privilege?

"For inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." The matter of food and drink contributes more toward making people feel pleasant and happy and Christianlike, than we perhaps realize. One may feel tired and faint and cross; but the sight of tempting food, tastily arranged, is one of the great aids in helping to put away bad feelings, and make one to feel pleasant; and when added to this we have pleasant and courteous treatment, it is a wonderful help toward good feeling and gentle bearing. On the other hand, when one feels tired and faint and cross, how much more apt he is to indulge in unkind words if the food is not as it should be, and the dining-table in disorder! I need not enumerate these things, for they have been seen by almost every one too often. Sometimes the waiters are busy with something else; and after pushing the bread, and the cream and sugar, and perhaps meat and potatoes, toward the hungry one, they turn off to something else. May be the bread is forgotten; perhaps the coffee is forgotten. Of course, one is at liberty to speak out when what is justly his due is not given him; but one who is faint and hungry is not likely to have an extra amount of Christian graces just at that precise moment. In fact, I have sometimes thought that Satan made haste to make the most of such an occasion. He whispers to the hungry one, "The world is hollow and selfish—the whole of it; there is no such thing as get-

ting your just dues anywhere without fighting or making a fuss about it." Who knows but that some poor soul might have been saved from crime, perhaps suicide, by a little more care in this one thing of food and drink—loving care from those on whom the responsibility falls, of looking after these little matters of food and drink?

If thine enemy hunger, feed him; if he thirst, give him drink.

Are not these wonderful words? Paul did not mean that you were to feed your enemy grudgingly, but as if you loved him, and were anxious to win him back to friendship. Feed him as if you enjoyed doing it, and you soon *will* enjoy it. Years ago, before a loving wife looked after my wants in the way of food and drink, I can remember once or twice of being served with short rations just because I could not consistently avoid offending those who had it in their power to minister to my wants with a slack or lavish hand. I could not well help myself just then, and so I bore it; but what a miserable way to vent your spite on any human being, by obliging him to go hungry!

By the way, dear friends, did you ever think how extremely natural it is to pay back, or render evil for evil, to any one who has misused you or wounded your feelings? Where is the man or even woman who feels like doing kind offices in repay for unkind ones? Human nature is all against it. I have talked about rendering good for evil, and doing good to those who hate you, for nearly a score of years. I have told you how it rejoices my heart, when opportunity presents, of heaping coals of fire on the head of an enemy; and now, after all I have said and done in this line, my first impulse is almost always, even now, to strike back. Even while writing this paper to you I was interrupted, and called out of the room. Something was going wrong—something that needed my immediate attention—something that needed stopping at once. The power lay all in my own hands, so I had but to say the word, and the friend who had offended would be made to suffer. Now, I do not know but that I should have said that word had I not remembered how many, many times I had resolved that I would go slow at such times, and first see whether my course were exactly in the line of Bible teachings. It is human to return evil for evil, but it is divine to render *good* for evil. I am glad that Paul made the suggestion we have in our text, for it seems to be the easiest and quickest way in the world of doing good to anybody, to watch for an opportunity of ministering to his hunger, or of giving him drink when he is thirsty.

My friends, it is not unlikely that you can put this admonition in practice within the next fifteen minutes after you read this paper. When I was a boy I used to be cross and peevish and fretful, a great many times. Next to me in age was a younger sister, and, by the way, I have a picture of that sister now. I can look on it and see exactly how she used to look when I was a dozen years old, and she was was, may be, two years younger. I was not a very good brother;

but she was a wonderfully good and kind sister. If, during my absence, there was any fruit brought into the family—any sweetmeats, or any thing that she knew I liked, she would always save some of it for me. Perhaps grandmother would bring us some maple sugar; and if no one else would remember the absent brother, this sister did; and it did not make any difference whether I was unkind or not, she was just as ready to do me kind services. A great many times she made me feel ashamed of myself by her mild, gentle ways when I was overbearing and rough. God bless the sisters of our land! I wonder if they know how much it is in their power to win wayward brothers to better things. And this matter of food and drink comes right in here: it is their province—their privilege. Now, I do not mean to be altogether one-sided, dear friends. I know the troop of brothers in our broad land have it in their power also to do the same thing for these sisters in the way of food and drink. They can help the sisters to find the wherewith for this same food and drink we all must have. We can win each other—do you see? And when we get really about it in the home circle, we shall very soon feel like extending these kind offices to the neighbors over the garden fence or across the way. In our bee-conventions we have heard over and over again how some irritated neighbor had been softened by a simple section of honey—something for the evening meal, and to please the little ones. Now, my friends, it is not about bees alone that neighbors quarrel. Hard feelings come up about the chickens, and sometimes about the cows and pigs as well; again about the line fences; then about borrowing, and in all kinds of business deal. Have you a mean neighbor? Good people as well as bad people are evenly distributed all over the land, and most of us have had experience with both kinds. Now, then, if you have a mean neighbor, of course you want to cure him, and you want to make him decent and pleasant to deal with; you want to make him fair and honest, neighborly, and progressive. How shall we go about it to secure this end? Why, there is no better recipe in the world than the one Paul gave. Wait until he is hungry, then send over something appetizing. If you can not manage it in a neighborly sort of way, ask your wife to help you. Women have a wonderful tact in this kind of thing. Get acquainted, anyway. I do not believe it is right to have neighbors, and not get acquainted with them. Some people will say of certain ones, "The less you have to do with them the better." I do not believe it. I am sure it is not true. If you are a Christian you ought to bear in mind that the Lord and Master honored you by saying, "Ye are the salt of the earth." Now, my friend, how in the world are you going to make the world better if you don't know the world? Get acquainted. Let the children play with the neighbors' children. There is danger of their learning bad things and bad talk, I know; but, my friend, if you are watching and praying—if you are praying for your neighbors as well as for

the little ones of your own household, I think you can manage so there will not be any danger. Do not let the children go to such an extent that you don't know where they are nor how long they have been gone; but bear in mind that the little ones can help to save mankind as well as those grown up.

Now, if you say you have not any enemies, I shall think one reason is you are not very much acquainted, and that you are not very progressive. Get acquainted. See what is going on; find out why it is that our penitentiaries are constantly becoming larger; see where the seeds of crime start. If there are none at enmity with yourself, there are enemies of Christ that need looking after. They need looking after and feeding. Do you remember how Jesus told Peter, over and over again, "Feed my sheep;" and, "Feed my lambs"? My friends, there are those among your acquaintances who need feeding now. If you are hungering and thirsting after righteousness, there is abundant need that you should be up and doing. If you are longing for the time when Christ's kingdom shall come, and his will be done on earth as it is in heaven, set about hastening the glad day by enlisting in his service; and when you feel inclined to say there is nothing you can do, read over again this 20th verse of the 12th chapter of Romans:

If thine enemy hunger, feed him; if he thirst, give him drink; for in so doing thou shalt heap coals of fire on his head.

A LETTER FROM THOMAS HORN TO HIS CREDITORS.

AN EXPLANATION AND AN APOLOGY.

A CARD:—To my Customers, and Bee-Keeping Friends. As you know, friend Root has kindly gathered all claims and complaints against me, and sent me the same; and to say that they surprised me would but faintly express my feelings. I thought friend R. hard on me; but I certainly, under the circumstances, must ask his pardon for such thoughts.

Now, friends, let me explain, as nearly as I can, just how the case stands. Business pressed so much that it was utterly impossible to attend to the mail myself, and my order to my book-keeper was to answer all complaints; and if the goods could not be sent, to return the money; and I find very many of the complaints received are marked in his hand sent. Whether the errors were his or the yard help, I can not say, as I was so pressed for help that I had to use inexperienced help, and, I am sorry to say, as matters turn out, it was careless help, and many goods must have gone astray, or have been sent to other parties than they were intended for. When the season closed it found me with some complaints that had not been looked to, and, I am sorry to say, some orders that had not been filled or cash returned. I would then have returned to every one his money, but was unable to do so. Owing to the use of inexperienced help, expenses far exceeded my income; and, owing to other losses, it left me with no capital and plenty of experience; but through the kindness of friend Root, and encouragement of many of my old cus-

tomers, and assistance of friends, I am going to continue the struggle on a new basis, attending to the mail myself, and employing none but competent help in the yard. As to complaints and claims, I will pay every penny with interest, but must have time to do so. I shall pay them just as rapidly as I possibly can. Asking your patronage, I am yours very truly.

THOS. HORN.

Sherburne, N. Y., Apr. 7, 1887.

In a private note accompanying the above letter, friend H. says:

I am preparing the notes just as rapidly as possible, and will finish this evening so as to go out in to-morrow's mail.

THOS. HORN.

We presume from the above that our friends have, by the time this reaches them, Mr. Horn's note for the amount due.

Now, friends, there is a valuable lesson to be learned from the above. Be very careful how you undertake to do business, or to sell goods of any kind, at a less price than they can be afforded. If you think you can furnish some suitable commodity at a lower price than it has been yet offered at in the market, try it on a small scale first. Put in a modest advertisement, and be very careful about bringing responsibilities upon yourself that you are not able to carry. There is a certain limit to what any one man can do; and when this limit is passed, and he is obliged to employ hired help, experience usually indicates he must receive a larger price for his produce than where he can attend to it all himself. It is indeed a fearful thing to be placed where friend Horn is placed just now. Instead of receiving pay for his produce, as the rest of us do, long years must likely be spent in hard labor to make up for the losses of only a few months, consequent upon selling goods at a price that did not pay expenses.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APR. 15, 1887.

Do good to them that hate you.—MATT. 5:44.

OUR FRIEND T. S. HALL.

MR. HALL is now located at Corinth, Miss., and wishes us to say that he is now prepared to fill his orders of last season that were not completed, and that he has 200 colonies from which to take bees, queens, etc.

BUSINESS AT THIS DATE.

WE are having a larger trade now than we perhaps ever have had before, at this season of the year. We are pretty well up with our orders, but on a few things there is necessarily some delay;

and especially is this the case with sections. As the present dry weather is, however, wonderfully favorable for seasoning the contents of our lumber-yard, we hope very soon to be able to report that we are up with orders once more.

MARCH WEATHER IN FOREIGN COUNTRIES.

From the *British Bee Journal* of March 31, we take the following:

The present March will long be remembered as one of the most severe on record. Frosts, snowstorms, snow lying to a depth of eighteen inches, gales, almost hurricanes, have prevailed; and 25 degrees of frost have been registered, sufficient, we fear, to kill in many cases the embryo buds on the fruit trees, if not the embryo brood in our hives. But we have only neighbors' fare, since we are told that the experience is the same "from Northern Denmark to Southern Spain."

YOUNG CARP IN APRIL.

THIS 12th day of April we see hundreds of little carp in our pond, from the size of a cucumber-seed up to those an inch in length. Now, I wish some of the veterans would tell me where these little chaps come from. The month of March was altogether too cold, according to the books, for spawning and hatching; and the question is, Were these little fellows hatched last fall, or have they got so big already this spring? Now, please do not ask me to sell some, for I do not know how to catch them. Besides, we are ever so much too busy with our regular work at this time of year. There ought to be some way of sending little carp by mail. In the winter we had some of the little chaps in the greenhouse, in a tank under the central bed, and they became so tame they would eat crackers out of my hands just as freely as a lot of chickens. If it were not for the trouble of catching them out of the pond, it seems to me they could be raised and sold almost as cheap as cabbage-plants; then may be they could be mailed short distances in damp moss. Suppose some of the carp-journals work out this matter. Why not have little fishes by mail, as well as queen-bees?

SIMPLICITY HIVES WITH BEVELED EDGES.

INASMUCH as quite a number of the bee-friends have complained of the beveled edges at the tops and bottoms of the Simplicity hives, and have suggested that these beveled edges were unnecessary, it may be well to explain that the hives as first used were used one over the other, with plain square joints. Mr. Langstroth, however, decided that such a joint was defective, for he made his upper stories to slip over the lower ones, resting them on a strip nailed on. The principal thing that determined me to have a better joint was the many and very grievous troubles I had from robbers getting through the ordinary square joint. So many losses resulted from this cause alone that I decided, cost what it would, I would have no more hives with cracks that could possibly let a bee through, even if one hive were carelessly set over another. The Simplicity and chaff hive both stop this nuisance entirely. Many experiments also satisfied me that rain, wind, and frost, can not be kept out as they should be, with plain square joints. Of course, bees will, in the fall, fill these joints with propolis; but when the hives are changed about, this very propolis makes it worse than before, unless we scrape it off laboriously. I do not believe that those who have been in the habit of using hives with the Simplicity joint will be satisfied to go back to the plain square joint. In any case, I would test a few before having hives made in any considerable quantity on the latter plan.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

FOUL BROOD; SUCCESS IN WINTERING; HONEY-BOARDS.

SHORTLY after GLEANINGS for last issue was out, the weather became sufficiently warm, so that I told the boys to go through the colonies, examine every comb, and watch sharp for foul brood. In the evening of the same day I sat at my desk in the corner, reading over matter for GLEANINGS, when all at once the door opened, and Mr. Spafford stepped in and said:

"Well, I have found another case of foul brood."

"Is it possible?" I said.

Together we went down to the colony in question. Yes, that very colony had been treated for foul brood late last fall, by the plan we have described in GLEANINGS. The worst part of it all was, that it reappeared, and that, too, in a clean new hive. Of the 60 cases that we had treated last fall, all were apparently cured, and we were going to put it down in the A B C book that the plan we practiced was a success in every instance; but this one colony, unless we made a mistake in its manner of treatment, seemed to be an exception to the general rule. However that may be, we can not tell.

Uncertain as to what should be done, I started toward the paternal mansion, to lay the matter before father and Dr. Miller (the latter was spending a few days here at that time). The family were just sitting down at tea. Although the hive containing the foul-brood colony was a new one, I inquired whether it would not be best to do with this as we had done with the other; that is, burn it—hives, bees, frames, combs, and all. Dr. Miller and A. I. R. agreed that, as this was apparently the only colony in the apiary, with foul brood, complete extermination was by far the safer way. Accordingly, with Mr. Calvert's assistance, I carried the hive over to the furnace that evening, threw in the combs, smashed the hive to pieces, and dumped it into the fire. We both said it seemed too bad to burn a brand-new hive and such nice-looking bees; but we doubt if, under the circumstances, many of our readers would have done otherwise. If but one or two more cases shall yet appear, we don't propose to give them any thing milder than this heroic treatment. If, on the contrary, one-fourth or one-third of the colonies were diseased, and we have reason to believe that foul brood was scattered all over the apiary, we should try the milder treatment as we did last summer and fall. The complete extermination of forty or fifty colonies would be, in this case, a little too severe.

APRIL 11.—NOT A SINGLE COLONY OF THE 200 LOST.

As there is a brighter side to almost every thing, I will now give you some facts which make us feel greatly encouraged. For the last week the apiary has been examined almost daily, and no foul brood has been

found. More than that, at this date, April 11, we have not lost a single colony by wintering. Taking into consideration the fact that so many of our colonies had been reduced last fall by foul brood, and, in consequence, were very weak; and taking into consideration that we commenced feeding rather late in the season, and consequently fall brood-rearing was not carried on; we think we have a good deal to flatter our vanity. Not only were no colonies lost, but every one seemed to be as strong, and in many cases stronger, than when put into winter quarters late last fall. Unless we have some pretty severe weather, I think we shall be able to record in next issue that the Home of the Honey-Bees has wintered over 200 colonies during the winter of 1886-'7 without the loss of a single one.

THE SLATTED HONEY-BOARD, AND HOW TO USE IT.

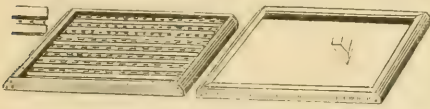
The advent of the Moore crate and the T super—in fact, all kinds of section-crates used above the brood-chamber, has made the use of the Heddon slatted honey-board almost a matter of necessity. The construction of the Simplicity hive is such that an ordinary slatted honey-board to slip inside (such as we have heretofore advertised) can not be used between the stories of our regular Simplicity hives without interfering with the frames above when the hive is run for extracted honey. However, it was all right for comb honey. The problem, then, which we have been trying to solve for the past three or four months was, "How shall we construct a honey-board so that it can be used in a Simplicity hive, exactly as we have made and sold it for years back, without interfering with the frames for extracting, or the double-tier wide frames?" Let me explain to you more exactly the real point we had at issue.

For illustration, let us take a two-story Simplicity hive; put into it 10 frames below and 10 above. We insert between the two stories, to prevent the queen from laying in the upper set of frames, and to prevent burr attachments, a wood-zinc slatted honey-board. As the hive is constructed with the beveled edge, there is $\frac{3}{8}$ of an inch between the upper and the lower set of frames. The honey-board is $\frac{1}{2}$ inch thick at the ends. We will now put in the slatted honey-board, and see what the results are. We find that the upper set of frames are raised off the rabbets just $\frac{1}{4}$ of an inch. We conclude, therefore, that this will not do. We have formerly told our customers to slip into the rabbet a strip of wood wide enough to raise the upper set of frames the proper distance above the slatted honey-board.

We will next arrange the two-story Simplicity hive for *comb honey*. To use either the Moore crate or T super we put in the honey-board, pile on the two crates, slip the body over, and all is well, *providing* the bee-space in the crates or supers is below the sections. Our old honey-board has a bee-space below it, but none above, and it is this particular honey-board that we have been discussing thus far.

Now, in discussing the proper construc-

tion of the T super recently, our readers will remember that Dr. Miller and others recommended most strongly that the super be made with the bee-space *on top*, and not below. At the very outset it was evident that the old honey-board could not be used with the T super having a bee-space *above*, for the simple reason that the super would rest right on the honey-board without any space between them. As the arguments came in so thick and fast, showing the advantage — indeed, we might say the *necessity* — of putting the bee-space above the sections, it became evident that we should have to construct our honey-board with a bee-space above and below, or, as Mr. Heddon terms it, I believe, a “sunk” honey-board. This would necessitate making the ends of a honey-board $\frac{1}{2}$ inch thick. By putting such a honey-board on the hive, we discover that the *upper* story Simplicity would not go on, on account of the bevel on its under edges. Well, then we said we would bevel off the ends of the honey-board, as seen in the engraving. We did so, and the upper-story Simplicity body fitted on all right. Below we give a view of the honey-board, shown at the left, the ends beveled in such a way as to fit under the bottom edges of the Simplicity upper story.



SLATTED-WOOD-ZINC HONEY-BOARD, WITH RIM FOR SIMPLICITY HIVE.

You observe, also, that the slats are “sunk” so that the honey-board itself furnishes a bee-space above as well as below. In other words, it is now adapted to the super with the bee-space above. To give you an idea of how the slats are fastened to the end-pieces, we give you a cross-section of the end. Let *A* be the end of a slat, and *B* a cross-section of the end of the honey-board, as shown in the accompanying diagram. The slat *A* slides into the mortise *a*. In putting together, we take the full number of slats required, and slide them into the mortise, or groove *a*. When all are in, a couple of side pieces, as shown in the engraving, are nailed to the ends. One nail through each slat, starting at the point *c*, holds each slat firmly in place. To make this honey-board queen-excluding, saw-kerfs are made in each slat, and the strips of perforated metal are slid in between the slats.

So far we have arranged for the bee-space in the T super, as recommended by Dr. C. C. Miller and others, and this honey board can be used with all the supers that we now make with the bee-space on top in the Simplicity hives, and every thing will be well; but if we desire to run our Simplicity hive for extracted honey we shall find the same difficulty that we mentioned before, only

worse than ever. That is, if we use the honey-board as shown in the engraving at the left, and put it between the upper and lower set of frames, it will raise the latter $\frac{1}{2}$ inch above the rabbet. In order to remove this difficulty it becomes necessary to raise the Simplicity body just high enough so as to leave a bee-space between the upper set of brood-frames and the honey-board; hence we make use of the beveled frame shown in the right of the engraving. This frame is so made that it fits exactly between the upper and lower story. You notice that the frame is a trifle larger than the honey-board; that is, it is of just such a size as will slip snugly around it. Right here I presume some of you will suggest, “Why not fasten this rim permanently to the honey-board — in other words, make it part and parcel of it?” In theory this seems quite an easy thing to do; but here, again, the beveled edge presents practical difficulties that make it desirable and better in every way to have the honey-board and the rim separate. In the production of comb honey the rim is not necessary, and probably a large number of those who are working for extracted honey would not care to use the honey-board at all. The whole thing resolves itself into this: That the rim is not necessary in the production of *comb* honey; and for the few who desire to use honey-boards in the production of extracted honey, it hardly seems fair that the larger number composing the other proportion of honey-producers should be made to bear the extra expense of making this outer rim a part and parcel of the honey-board itself.

Here, again, I begin to suspect that some of you will suggest, “Why not dispense with your old beveled edge (which, by the way, is a perfect nuisance), and make your slatted honey-board in outside dimensions equal to the outside dimensions of the hive, just as Mr. Heddon and others make and use it?” In answer to this we would say that, even granting for argument’s sake that the beveled edge is not a necessary feature, there are hundreds of thousands who are using this same “naughty” beveled edge; and if we change and make all our hives with a square joint, the new Simplicity hives will not be interchangeable with the old ones; but we believe the honey-board, as illustrated and described above, is one which fills the bill as nearly as possible under the existing circumstances. So important did we consider the proper construction of the honey-board for the Simplicity hive, that, at Dr. Miller’s suggestion, we asked him to “come over and help us.” When he arrived here, upon full and careful consideration he said that this honey-board was the only one that could be used with the *beveled* edge. I will say, in this connection, that we had a number of good talks from Dr. Miller on hives and hive construction; and if he has not “led us out of the woods,” as friend Drew puts it, on this beveled edge, he has on quite a number of other things. The result of these long talks, and the candid criticisms presented by the doctor, will probably result in a mutual benefit to us all.

SPECIAL NOTICES.

PRICE OF THE NEW SLATTED HONEY-BOARD.

Our improved slatted honey-board as shown and described on page 321, with and without the strips of zinc, will be the same price as formerly; see page 22 of our catalogue. When the rim is desired, the price in flat will be 3c each; 45c for 10, or \$4.00 per 100.

WOOD MATS.

We have discontinued making the wood mats that we have sold for a number of years, and have not advertised them in our catalogue for nearly a year. We have stopped making them because we could not recommend them, as, when they are stuck fast to the frames, and you wish to remove the mat, it jars each frame as it is withdrawn, and irritates the bees. We like our enameled sheets so much better that we will send them hereafter instead of the wood mats.

MAPLE SUGAR.

The maple sugar and syrup of this year averages better throughout than we ever knew it to before. There is also a good deal of it just around here where the maples are plentiful. Because the quality is so much better throughout, the different grades that we make will, of course, be of better quality than heretofore; that is, you will get better sugar for the same money. We have a very fine large stock of the three grades—10, 9, and 8 cts. In 50-lb. lots, ½ cent less. In barrel lots of about 280 lbs., 1 cent less. If you want more than a barrel, write us for special prices.

PEAVINE CLOVER-SEED REDUCED.

Although alsike has gone up to the old price, \$8.00 per bushel, we are glad to announce that, for a limited time at least, we can furnish Peavine, or Mammoth clover-seed, at the following very low prices: \$5.00 per bushel; \$2.60 per ½ bushel; \$1.40 per peck; 12 cts. per lb. I don't know how long these prices will last; but if the price advances again, we shall, of course, have to charge more. We have secured a nice lot of alsike seed, and we are glad to say our prices will not have to go any above our last announcement—\$8.00 per bushel.

ADVANCE IN THE PRICE OF BEE-VEILS.

When we reduced the price of bee-veils last summer it was because we got a cheaper and poorer quality of grenadine to make them of, not being able at the time to get any thing better. We have just recently secured a very large lot of fine grenadine, and we are obliged to advance the price of bee-veils again to the following prices: Grenadine veils with brussels-net face, 60 cts.; all-grenadine veils, 50 cts. Mosquito-bar veils with brussels-net face, 40 cts.; veils made entirely of mosquito-bar, 25 cts. Prices in lots of 10 will be \$4.50, \$4.00, \$3.20, and \$2.00.

SECOND-QUALITY SECTIONS.

We are constantly getting orders for second-quality sections, which we can not fill. We do not advertise nor agree to furnish such sections; and the way our new lumber is turning out, we shall not have any to spare this season. Our basswood lumber, cut the past winter, which we are beginning to work up into sections, is turning out some of the finest sections we ever saw, being almost as white as the paper on which this is printed. We have been very careful in the selection of our lumber, and careful, also, to have it cut the right time of year. This naturally makes the culs very scarce, and it is only the culs that we sell for second-quality sections. If we receive orders for second-quality sections we shall be obliged to send first-quality or none. Please remember this in making your orders. I think, as a general rule, you will find that comb honey will sell enough better, in nice white sections, than in culs, to justify you in paying the extra price. Of course, there may be a few exceptions to this in the home market; but where honey is sent off to the towns and cities it will certainly sell better when the sections are clean and white.

A SPECIAL LOT OF 1½-STORY SIMPLICITY HIVES.

We have recently made a large lot of Simplicity hives, which consist of a regular Simplicity body, ½-story cover, and cleated bottom-board, which

projects in front of the hive about three inches, to form an alighting-board. In front end of the bottom-board is cut a half-circle ⅝ of an inch deep, to form an entrance to the hive when the body is slipped forward on the bottom. These hives are put up 10 in a package. Now, the price of the regular Simplicity 1½-story hive with alighting-board and bottom-board is \$7.00 for ten; but we will sell this special lot, which is equally good as the regular Simplicity 1½-story hive, for \$6.50 for ten. That will make the price the same as ten 1½-story portico hives, or ten-crate number 4. These hives were made for a foreign order which was received through a New York house, and they, in copying the order, wrote 1000 instead of 100. When you order these hives, please order them by the name of "10-crate No. 5." When 1½-story Simplicity hives are ordered we will send these hives to fill the order, unless you specify that you do not want them. They are really better than the regular 1½-story Simplicity hives with bottom-board, because you have an alighting-board extra, without extra charge. If these hives please as well as we expect them to, we shall probably keep them in stock.

CONVENTION NOTICES.

The next meeting of the Northwestern Illinois and Southwestern Wisconsin Bee-Keepers' Association will be held at Rockton, Ill., May 24, 1887.
D. A. FULLER, Sec.
Cherry Valley, Ill.

The ninth annual meeting of the Texas State Bee-Keepers' Association will be held at the farm of Judge Andrews, near McKinney, Collin Co., Texas, May 4 and 5, 1887. Bee-keepers of Texas, come out! and all other bee-keepers are fraternally invited to be with us. No hotel-bills to pay.
B. F. CARROLL, Secretary.
Dresden, Tex.

ITALIAN QUEENS. WARRANTED TO
GIVE Satisfaction.
TESTED, \$2.00; UNTESTED, \$1.00, after May 15, 1887.
R. W. TURNER, Medina, Ohio.

INDIANA.—Headquarters for pure **ITALIAN QUEENS.** At prices that will surprise you. Write us for catalogue and full particulars.
MARTIN & MACY, North Manchester, Ind.
Eggs from high-class poultry for sale.

Recent Additions to the Counter Store.

FIVE - CENT COUNTER.

- | | |
|---|-----------|
| 4 DARNING-BALL, black enameled | 40 3 80 |
| These are the shape of a large egg, with a handle in one end. In the end of the handle is a place to keep needles. Handy for darning stockings. | |
| 2 BUTTON-HOOK, steel, with ivory handle | 45 4 40 |
| 2 BLOW-PIPE, 7 in., used by jewelers..... | 46 4 50 |
| Made of brass, and usually sold for a dime or more. | |
| 3 BASEL FOR CUP AND SAUCER, silvered wire. | 40 3 80 |
| Sets off your china cup and saucer to good advantage. | |
| 3 SOAP-STAND, silvered wire..... | 40 3 80 |
| Very pretty and useful. | |
| 1 HANDKERCHIEF, BORDERED | 45 4 40 |
| Fancy colored or mourning borders, hemmed. | |

TEN-CENT COUNTER.

- | | |
|--|-----------|
| 2 POCKET-COMB, either folding-rubber, or horn with mirror..... | 80 7 50 |
| 2 NEEDLE-PACKET | 80 7 50 |
| Consists of 4 papers of assorted needles and some large sizes. | |
| 2 WATCH-CHAIN, white metal..... | 90 8 50 |
| Cable pattern. Looks and wears like silver. | |

FIFTEEN - CENT COUNTER.

- | | |
|---|--------------|
| 3 INDELIBLE INK for marking linen .. | 1 40 13 50 |
| This is universally sold for 25 cts. per bottle, but we have decided to give you the benefit of the extra 10 cents. | |

TWENTY-FIVE CENT COUNTER.

- | | |
|---|--------------|
| 5 SUSPENSERS, elastic, nickel trimmed | 2 20 20 00 |
| Some have thought our 10-cent suspenders too cheap, so we have got some good enough for a king, for 25 cents. | |

THIRTY-FIVE CENT COUNTER.

- | | |
|--|--------------|
| 20 SPICE-NEST | 3 00 28 00 |
| Six neat little spice-boxes, with the name in gilt in a neat frame, all of japanned tin. | |

FIFTY-CENT COUNTER.

- | | |
|---|--------------|
| 1 WINDOW-SCREEN FRAME..... | 4 00 36 00 |
| These are put together with castings at the corners, and can be made to fit almost any window. They are grooved at the side, to slide up and down on an iron that goes with them. | |
| 3 WATCH-CHAIN, white metal—beauties | 4 00 38 00 |
| Assorted patterns, with drop. They look and wear like silver, and are warranted solid "Albino" white metal. | |

A. I. ROOT, Medina, O.

FULL COLONIES OF ITALIAN BEES

With queen, in A. I. Root's Simplicity hive, 9 metal-cornered wired frames, combs drawn from full sheets of foundation, \$5.00. I make this offer to reduce my stock of bees in a short space of time, as other business demands my attention. 89d

E. D. GILLET, Brighton, Lorain Co., O.

FOR PRICES OF

Berry-Baskets and Crates, Send to

MELLINGER, HARROLD & GROVE, Columbiana, O.

SEND FOR SAMPLE BASKET FREE.

We also sell baskets in flat.

7-10db

100 Tested Queens from Imported Mother,

NOV., 1886, REARING,

At \$1.00 each, during the month of April. Untested, \$9.00 a dozen. J. W. K. SHAW & CO., Money-Order Office, New Iberia. Loreauville, Iberia Par., La.

78d

HERE WE ARE AGAIN FOR 1887.

For Sale! Italian Queens

Bred of imported mothers. Bees by the pound, brood, nucleus, and full colonies. I never had four brood. Send for catalogue. C. F. UHL, 77fdb

Millersburg, Holmes Co., Ohio.

700 LBS. BEES During first half of May I will sell these at \$1.25 per lb. Also untested Italian queens, bred from imported mother, to go with bees, at \$1.25 each. Cash must accompany orders, and should be sent before Apr. 20. Ref., 1st Nat. Bankhere. 789d E. Burke, Vincennes, Ind.

LOOK HERE!

20 CHOICE GREENHOUSE AND BEDDING PLANTS for only \$1.00 by express, or \$1.10 by mail. Eggs for hatching, from leading varieties of land and water fowls; also **BEES** and **QUEENS** very cheap. Write for prices to

6-9db

E. M. HIVELEY, Youngstown, Ohio.

IF YOU ARE WANTING

ITALIAN, HYBRID, or GERMAN BROWN BEES,

Simplicity Hives, or Section Boxes,

Send 2-Cent Stamp for Circular to

67fdb

THOMAS GEDYE,

Box 653. La Salle, La Salle Co., Ill.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address

67fdb

HENRY ALLEY, Wenham, Mass.

1887. BEESWAX 1887.

Made into best Given foundation at reasonable rates, and on short notice. Send in the wax. I have die-books for all the standard frames.

67fdb JOHN BIRD, Bradford, Chickasaw Co., Iowa.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls — 1 ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.

Inches wide.	Inch mesh.	No. of Wire.
6	2	18 25, 10.
12	2	19 91, 85, 60, 50, 41, 40, 25, 25, 10.
12	2	18 70, 17, 15, 13, 13, 13, 1½ mesh, No. 17 wire, 24.
18	2	19 150, 130, 13.
18	2	18 140, 81, 1½-inch mesh, No. 19 wire, 166 sq. ft.
24	1½	20 120, 120.
24	1½	19 220, 64, 28, No. 18, 200, 1½-inch mesh, 62.
24	2	19 200, 170, 140, 130, 120, 100, 100, 100, 90, 88, 82, 64, 64, 56, 50, 50, 40, 32.
24	2	18 225, 224, 66, 58, 58, 56.
30	1½	19 100 41, 32, No. 18 wire, 90, 40, 30.
30	1½	19 75, 55, 17, No. 18, 42.
30	2	19 250, 237, 167, 125, 125, 123, 45, 40.
30	2	18 150, 130, 13 mesh, 42.
36	1½	19 342, 234, 144, 114, 75, No. 20 wire, 348, 312.
36	1½	18 270, 180, 108, 81, 39.
36	1½	19 216, 27, No. 18 wire, 90.
36	2	19 345, 330, 270, 255, 246, 240, 237, 235, 204, 204, 198, 195, 132, 126, 75, 75, 60, 60, 57, 53.
36	2	18 360, 291, 114, 72, 51, 36.
42	2	19 350, No. 18 wire, 203, 63, No. 18, 1½ mesh, 189.
48	1½	20 364, 40.
48	2	19 352, 296, 268, 200, 168, 144, 120, 100, 96, 68, 36.
48	2	18 204, 172, 60.
54	2	19 450, No. 18 wire, 288.
60	2	19 595, 490, 445, 385, 335, 330, 325, 285, 280, 250, 240, 225, 220, 210, 180, 165, 160, 140, 130, 80, 50.
60	2	18 410, 335, 320, No. 17 wire, 195.
72	1½	19 438, 312, No. 18 wire, 228.
72	2	19 750, 720, 690, 672, 636, 618, 558, 510, 438, 438, 420, 270, 252, 252, 222, 192, 168, 168, 162, 156, 156, 156, 126, 130, 66, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season.

A. I. ROOT, MEDINA, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL. See advertisement in another column. 37fdb

Write to W. H. COOK, * Clintonville, * Wis.,

FOR PRICES ON

Bee-Hives, Sections, & Frames

As I am located where an abundance of basswood and pine grows, I feel safe to say I can furnish my goods as cheap as they can be produced.

A. I. Root Chaff Hive a Specialty.

All goods warranted. For reference, apply to the Bank of Clintonville, Wis. 47fdb

The "Gilt Edge" Apiary offers Italian queens from imp. mother; untested, in April and May, \$1.00; unt'd, in June and after, 75 cts. Tested queens double above price. A. P. STAIR, 5-10db Whitney, St. Clair Co., Ala.

E. M. HAYHURST'S FINE ITALIANS.

\$4.50 TO \$5.50 PER COLONY:

On account of ill health I have decided to sell my **Queen-Yard** this season, at the following prices: One full colony, \$5.50; two or more, \$5.00 each. These bees are in one-story, ten comb Langstroth hives; have fine young tested queens, and a reasonable amount of brood and bees, with honey for the trip; are perfectly healthy, no foul brood in my yard or neighborhood; they are extra fine stock, and first-class honey-gatherers. If wanted in rough shipping-box instead of hive, the price will be 50 cts. per colony less than above. Safe arrival guaranteed. Will begin shipping about May 1st.

87fdb

P. O. Box 60.

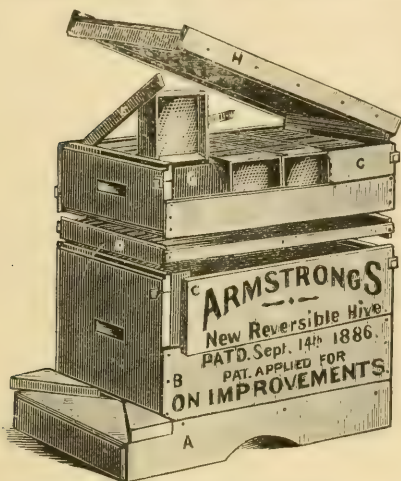
E. M. HAYHURST, KANSAS CITY, Mo.

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
— FOR PRICES ON —

BEE-HIVES, SECTIONS, And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
24-11db

ARMSTRONG'S



NEW REVERSIBLE HIVE.

The cheapest, simplest, and most practical hive ever offered to the public. H. D. Cutting, of Clinton, Mich., says: "Let me congratulate you on having such a good hive. Your reversible-section case is perfection itself." Sample hive complete, with paint, \$2.50. Send your name and address, plainly written on a postal card, and receive our 32-page illustrated catalogue free. Address

5tfdb

E. S. ARMSTRONG, Jerseyville, Ills.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-bangers for a 2 15-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Six 18-in. adjustable drop-bangers for a 2 7-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Eight 30-in. iron pulleys, 10-in. face, for a 2 7-16-in. shaft. Cost \$8.00 each; will sell for \$4.00.

These are just as good as new, and a bargain to the man who needs them.

A. I. ROOT, Medina O.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

MUTH'S HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON.

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers."

11tfdb

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



This box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 30 cts.: \$1.00 per 100; or \$9.00 per 1000; 10,000, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cts. per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

RUBBER STAMPS

DATING, ADDRESSING, BUSINESS,
LETTER HEADS, ETC.



No 1.



No 3.



No. 2.

Address only, like No. 1, \$1.50; with business card, like No. 2, \$2.00; with movable months and figures for dating, like No. 3, \$3.00. Full outfit included—pads, ink, box, etc. Sent by mail postpaid. Without ink and pads 50 cts. less.

Put your stamp on every card, letter, paper, book, or anything else that you may send out by mail or express and you will save your

self and all who do business with you a "world of trouble." I know, you see.

We have those suitable for druggists, grocery-men, hardware dealers, dentists, etc. Send for circular.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20fdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange eggs from four yards, pure-bred prize-winning Plymouth Rocks, for alsike clover seed. Eggs, \$2.00 for 13, or \$3.00 for 30.
B. D. SUDWELL,
3 8db Flushing, Belmont Co., Ohio.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free.
4fdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange eggs from pure-bred Langshan fowls, for beeswax, tested Italian queens, wood revolver, or any thing useful.
6d E. P. ALDREDGE, Franklin Square, Col. Co., O.

WANTED.—To exchange bees by the pound or full colonies, queens, comb fdn., eggs for hatching from L. Brahmas and S. S. Hamburgs, for sections, Jersey cow, American Merino sheep, or offers.
6-7-8-9d J. P. STERRITT, Sheakleyville, Mercer, Co., Pa.

WANTED.—To exchange 80 colonies of bees in chaff and Simp. hives, of 10 wired fdn. frames each, for some good land near by. Apply at once.
7 8d JAS. H. ANDRUS, Almont, Mich.

WANTED.—To exchange Wyandotte eggs, pure ground bones and shells, and Gregg raspberries, for comb foundation.
7-8-9d A. A. FRADENBURG, Port Washington, O.

WANTED.—To exchange metal cornered, wired frames (Simp.), ready to hang in the hive, filled with foundation, for Italian bees and queens.
7-8d R. B. BONEAR, Cherry Ridge, Pa.

WANTED.—To exchange Barnes foot-power saws and bees, for steam-engine, honey, or beeswax.
7-12db C. W. & A. H. K. BLOOD, So. Quincy, Mass.

WANTED.—To exchange a small self-inking printing-press, large enough to print postal cards full-size, for high-class poultry or raspberry-plants. Write for terms of exchange.
8d W. S. DORMAN, Mechanicsville, Ia.

WANTED.—Bee-keepers' supplies; a good, moderate-sized incubator; eggs for hatching; pure-bred pigeons, pheasants, etc.; for which I offer dry goods (of almost any kind). Samples on application. Please state what you want and what you have to offer.
8-10d WALTER SHERMAN, Newport, R. I.

WANTED.—To exchange one pair each "Silver-Spangled Hamburgs and Brown Leghorns, for fdn., or offers of bees by lb.; also, one silver watch to trade on a fdn.-mill (10-inch preferred), or will exchange for comb honey, Italian bees, or offers.
8d C. L. HILL, Dennison, O.

WANTED.—To exchange a Priham Foundation mill for honey; and fdn. for beeswax.
8-9d J. Q. A. HAUGHEY,
Box 2390, Battle Creek, Mich.

WANTED.—To exchange an English microscope, new, and 12 mounted slides, showing the different sections of the honey-bee. Cost in England \$10. I will take bee-hives or any useful thing for the apiary.
WM. N. BAILIE,
8d Box 845, Carbondale, Pa.

WANTED.—To exchange 30 or 40 swarms of bees for Jersey cow; I also have a few Bronze turkey-eggs, A 1 stock.
L. GORTON,
15d Salem, Washtenaw Co., Mich.

WANTED.—To exchange a foot-power former (Barnes'), a B-flat cornet, and 20 two-story Simplicity hives, for bees or offers.
8d CYRUS MCQUEEN, Baltic, O.

WANTED.—To exchange a Cyclostyle and a No. 2 Caligraph for bees, supplies, and part cash.
M. G. BAXTER, Uhrichsville, O.

WANTED.—To exchange complete photograph outfit for Army newspaper press or job office.
8-9d WALTER A. KALER, Andersonville, Ind.

WANTED.—To exchange eggs (Wyandotte, Light Brahma, and Buff Cochin) for hatching, for fdn. or sections. The fowls are all high strains.
8d M. D. HUGGINS, Davenport, Ia.

WANTED.—To exchange bees or queens for registered Jersey heifer.
8fdb ISRAEL GOOD, Sparta, Tenn.

Wanted. A good bee-keeper to take charge of my apiary of 121 colonies, on shares.
ROBERT BLACKLOCK, Killgore, Carter Co., Ky.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

After the 15th of May I will have 30 black and hybrid queens that I will sell for 25c each. These are good prolific queens, and well worth the amount.
W. S. DORMAN, Mechanicsville, Iowa.

For Sale.—A number of good hybrid queens at 25 cts. each.
L. HARRIS, Box 304,
Greenville, Bond Co., Illinois.

For Sale.—Hybrid queens at 50 cts. each; blacks, 25c. I can ship by return mail. We have some 50 now.
T. S. HALL, Corinth, Miss.

Hybrid queens, reared from select tested Italian mother, for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. GEO. W. BECKHAM,
8-9-10d Pleasant Hill, Lancaster Co., S. C.

I will sell on or after April 15th, 10 hybrid queens at 50 cts. each. Taken from swarms I bought last fall.
G. A. BEECH, Quitman, Nodaway Co., Mo.

I have a lot of hybrid queens for sale. Price 50c. in April-May; 70c. Safe arrival guaranteed.
H. M. MOYER, Hill Church, Berks Co., Pa.

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular.
18fdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.
3btfdb

FOR SALE.—200 Simplicity frames of nice bright combs, wired, \$12.50 per hundred; 25 basswood-frames 3 to 5 feet high, \$1.00; sprouts, \$4.00 per 1000.
8d CHAS. T. GEROULD,
East Smithfield, Bradford Co., Pa.

PURE ITALIAN BEES FOR SALE.

Two-frame nuclei, \$3.00; 3-frame, \$3.50. If larger nuclei are wanted, add 50 cts. for each additional frame. Full colony in A. I. Root's Simp. hive, \$6.00, each to contain a tested queen and plenty of bees and brood, all on wired L. frames drawn from fdn. To be shipped in May; safe arrival guaranteed. I shall do by all as I would be done by. Address
7-10db. N. A. KNAPP, Rochester, Lorain Co., O.

E. M. HAYHURST'S FINE ITALIANS.

\$4.50 TO \$5.50 PER COLONY.

On account of ill health I have decided to sell my **Queen-Yard** this season, at the following prices: One full colony, **\$5.50**; two or more, **\$5.00** each. These bees are in onestory, ten-comb Langstroth hives; have fine young tested queens, and a reasonable amount of brood and bees, with honey for the trip; are perfectly healthy, no foul brood in my yard or neighborhood; they are extra fine stock, and first-class honey gatherers. If wanted in rough shipping box instead of hive, the price will be 50 cts. per colony less than above. Safe arrival guaranteed. Will begin shipping about May 1st.

8tfdb

P. O. Box 60.

E. M. HAYHURST, KANSAS CITY, Mo.

THE VERY BEST

ITALIAN QUEENS & BEES.

	APRIL.	MAY.	JUNE.
Single queen, each.	\$1.25	\$1.00	\$1.00
6 to 12 queens.	1.00	.90	.75
1 TESTED queen, each	2.50	2.00	2.00
6 to 12 queens.	2.00	1.75	1.75
1 Two-frame nucleus, queen & brood, queen, \$2.50.			
50 Full colonies at \$6.00 each.			

HONEY Gatherers.

Safe arrival and satisfaction guaranteed.

Special discount to dealers.

W. J. ELLISON, Stateburg, Sumter Co., So. Ca.

DO NOT MISS THIS CHANCE TO GET ITALIAN QUEENS AND BEES

And **EGGS FOR HATCHING** from seven varieties of **High-Class Poultry**. Choice brooding stock, and prices low. Send for Circular and Price List. **CHAS. D. DUVAL**, Spencerville, Mont. Co., Md.

500 FRAMES OF BROOD

Two thirds full, well covered with bees (Italian), no queen, in two-frame nucleus hives; just the thing for queen rearing, \$1 each frame, after June 1st. Twenty last-year's tested Italian queens, \$2 each. 8914d

M. ISBELL, Norwich, N. Y.

ITALIAN QUEENS.

Reared from select mothers. Untested, \$1.00; Tested, \$2.00. **H. G. FRANK**, North Manchester, Ind.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Haddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; Chas. H. Green, Berlin, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 1916 Germantown Ave., Phila., Pa.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas; W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with **150 Complimentary and unsolicited testimonials**, from as many bee-keepers, in 1887. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3btfd **Hamilton, Hancock Co., Illinois.**

Holy-Land Bees and Queens, Cheap.

Full Colonies, Nuclei, and Queens.

SEND FOR CIRCULAR.

GEO. D. RAUDENBUSH, - **READING, PA.**
8-13db

A FLORIDA HOME.

Apiary for sale, with all fixtures. House and one half acre lot, conveniently arranged, and pleasantly situated on the Hillsboro River. Several varieties of young fruit-trees on the place. Fish and oysters in abundance. For price, etc., apply to

H. W. MITCHELL,
Hawks Park, Fla.

The above is one of the handsomest and best located lots for bee-keeping in East Florida, and the apiary is well stocked with new fixtures and appliances. 9d

W. S. HART.

Italian Bees and Queens, IN MAY AT JUNE PRICES.

Full colonies \$6.00 (simp. wire frames, combs built on fdn.). Bees per lb., 90 cts.; ½ lb., 50 cts. Frame of brood and bees, 75 cts. Tested queens, \$1.50. Untested, \$1.00. Queens reared from imported mother. **MISS A. M. TAYLOR**, 9tfdb Box 77, Mulberry Grove, Bond Co., Ill.

For Sale. Full Colonies of Italian Bees, 2, 3, and 4 Frame Nuclei

Tested queens before June 1st, \$1.50 each; after, \$1.25 each. Untested, before June 15th, \$1.00 each. After that date, single queen, 75 cts.; six for \$4; twelve for \$7.75. Pounds of bees, same price as untested queen. 7tfdb

I. R. GOOD, Nappanee, Ind.

FOR SALE BEES AND COMB FOUNDATION, by **E. S. HILDEMAN**, Ashippun, Dodge Co., Wis. 8910d

EGGS from California bronze turkeys, at \$1.50 per sitting of 9. My tom weighs 40 lbs. Italian bees and queens in any quantity. 7tdb

GEO. W. BAKER, Milton, Wayne Co., Ind.

500 FIRST-CLASS HONEY and WAX EXTRACTORS, CHEAP. 789d **E. T. LEWIS & CO., Toledo, Ohio.**

FOR* ITALIAN QUEENS *EARLY* and *CHEAP
611db Address **W. P. Davis, Goodman, N. C.**

COMB FOUNDATION.

Dunham Brood Fdn., 40c. per lb.; extra thin Vandervort Fdn., 45c. per lb. Wax made into fdn. for 10 and 20c. per lb.

SAMPLES FREE.

3-ftdb. **F. W. HOLMES**, Coopersville, Mich.

A. J. KING'S New Bee-Hive

Takes either Eclectic or Simplicity frames, the 1-lb. sections, etc., and is cheaper and better than any he has before brought out. He sells all supplies cheaper than ever, and guarantees satisfaction **EVERY TIME**. You will save money by writing him for particulars. 5tfdb 51 Barclay St., N. Y.

SUPPLIES VERY LOW.

Very nice brood foundation, 38 cts. per lb. Italian Bees in 10-frame L. hives, plenty of honey, straight combs, with queen, \$5.00. Novice extractor, well made, \$5.50. All supplies correspondingly low. **E. Y. PERKINS,** Jefferson, Greene Co., Iowa. 7tfid

60 Colonies of Italian Bees For Sale.

Italians, \$5.00; hybrids \$4.00, in Langstroth 10-frame hives. Also brood-frames filled with comb, and broad frames with separators. Address 7d **JOHN GRANT, BATAVIA, OHIO.**

FINE RUBBER PRINTING-STAMPS FOR BEE-KEEPERS, Etc.

Send for catalogue. **G. W. BERCAW,** Fostoria, Ohio. 9-10-11-13-14-15d

ARMSTRONG'S NEW REVERSIBLE HIVE.

The cheapest, simplest, and most practical hive ever offered to the public. H. D. Cutting, of Clinton, Mich., says: "Let me congratulate you on having such a good hive. Your reversible-section case is perfection itself." Sample hive complete, with paint, \$2.50. Send your name and address, plainly written on a postal card, and receive our 32-page illustrated catalogue free. Address

5tfdb **E. S. ARMSTRONG, Jerseyville, Ills.**

200 COLONIES OF Choice Italian & Albino Bees

FOR SALE AT GREATLY REDUCED PRICES.

Also a full line of Bee-keepers' Supplies. **COMB FOUNDATION** from choice select yellow beeswax a specialty, at very low rates, both wholesale and retail.

Do not fail to send for my 27th Annual Catalogue before purchasing.

Address **WM. W. CARY,** 3tfdb COLERAINE, MASS.

Mention this paper when writing.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-hangers for a 2 1/2-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Six 18-in. adjustable drop-hangers for a 2 7-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Eight 30-in. iron pulleys, 10-in. face, for a 2 7-16-in. shaft. Cost \$8.00 each; will sell for \$4.00.

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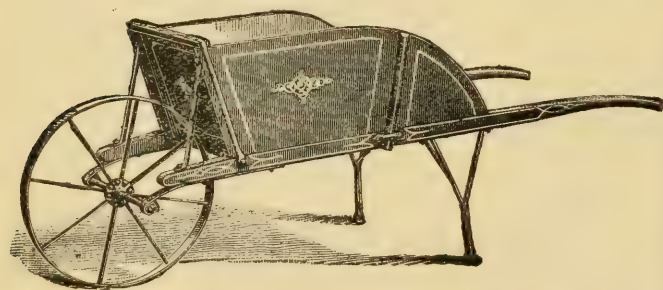
A. I. ROOT, Medina, O.

HERE WE ARE AGAIN FOR 1887. For Sale! Italian Queens

Bred of imported mothers. Bees by the pound, brood, nucleus, and full colonies. I never had foul brood. Send for catalogue. **C. F. UHL,** 9-11d **Millersburg, Holmes Co., Ohio.**

❧ A * WHEELBARROW * FOR * BEE - KEEPERS. ❧

ALSO A WHEELBARROW FOR WOMEN, CHILDREN, AND
PEOPLE WHO ARE NOT VERY STOUT.



OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

them at their convenience, when times were dull. Well, friends, the wheelbarrows are here, and they are a surprise to everybody. We show you a picture above. We have two sizes—the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so you can tighten them up for wear. More than all, the wheelbarrows are the nicest job of painting and varnishing I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only \$4.00, the same as our iron wheelbarrow. The larger size is \$4.50. The only discount that can be made is 5 per cent off for two; 10 per cent off for five, or 15 per cent off for ten or more. They can be sent either by freight or express. It is only five minutes' work to put one together.

A. I. ROOT, Medina, Ohio.

I have several times felt as if I should like to try my hand at making a wheelbarrow of our strongest wood and our best steel, properly braced and arranged so as to give strength, and yet not weigh one ounce more than is absolutely necessary. At the Ohio State Fair last year I found a wheelbarrow that came so near filling the bill that I asked the manufacturers how cheaply they could make 100. The wheelbarrow was all I could desire; but the price, I thought then, was more than we could stand. During the winter, however, they made a proposition which I considered very reasonable, providing they could make

BEES CHEAP! ITALIAN QUEENS

I have had charge of A. I. Root's apiary for three years. I intend to start an apiary five miles from town; will sell full colonies and nuclei cheap. Fine queens a specialty. For particulars, address

WM. P. KIMBER,

6tfdb Medina Co. Medina, Ohio.

FOR SALE.—**BEES**, good colonies in shipping-cases, with 9 Langstroth frames. Italians, \$4.50; hybrids, \$4.00; delivered at R. R. station any time after May 1. MISS MABEL FENN, Tallmadge, Ohio.



BEES FOR SALE COLONIES, Nuclei and Queens

At Living Rates.

Send for Circular and
Price List to

8tfdb C. C. VAUGHN,
Columbia, Tenn.



FOR SALE.—A complete apiary of 140 colonies of fine premium bees in a never-failing locality. A bargain, if called for soon. My bees and queens were awarded first premium at the late St. Louis Fair, St. Louis, Mo. Address at once, L. WERNER, Edwardsville, Ill. 4tfdb

For Sale. 100 colonies of Italian bees. From \$5.00 to \$8.00 per colony. Tested queens, in May, \$2.00; after June 1, \$1.50. Untested queens, in May, \$1.00; six, \$5.00; after June 1, 75c.; six, \$4.00. Also bees by the pound; 2 and 3 frame nuclei; hives, sections, fdn., etc. Circular free. 5-16db Address JNO. NEBEL & SON, High Hill, Mo.

**WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
—FOR PRICES ON—**

**BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers**

New Factory. Low Prices. Good Work.
24-11db

The "Gilt Edge" Apiary offers Italian queens from imp. mother; untested, in April and May, \$1.00; unt'd, in June and after, 75c. Tested queens double above price. A. P. STAIR, Whitney, St. Clair Co., Ala. 5-10db

3000 LBS. FIRST-CLASS FOUNDATION, CHEAP.
789d E. T. LEWIS & CO., Toledo, Ohio.

THE CANADIAN BEE JOURNAL. WEEKLY, \$1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Boston, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States bee-keepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfh

ON 30 DAYS' TRIAL.



THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. EGGLESTON TRUSS CO., Chicago, Ill.

1-12db

BEE-HIVES AND SUPPLIES.

ONE-PIECE V-GROOVE SECTIONS, BEE-FEEDERS, WIRE NAILS, PERFORATED ZINC.

Scrub Brushes, a friend for the ladies, 65 cents each; \$4.00 per dozen. Alsike clover seed, \$7.50 per bushel; \$2.00 per peck; 15 cents per pound.

B. J. MILLER & CO.,

4-10db

NAPPANEE, IND.

**PRIME & GOVE,
BRISTOL, VERMONT,
—MANUFACTURERS OF—**

Bee - Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples free. 5tfdb.

**HEDDON'S
—1887—
CIRCULAR
NOW READY.**

**ADDRESS JAMES HEDDON,
DOWAGIAC, MICH.**

1tfdb

BEE KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, for 1887. FREE. Reduced prices. Address JCS. NYSEWANDER, Des Moines, Iowa. 3tfdb

ATTENTION!

**SECTIONS, BEE-HIVES, HONEY-BOXES,
FRAMES, ETC.**

LARGEST FACTORY IN THE WORLD.

Best of goods at lowest prices. Write for free illustrated Catalogue. G. B. LEWIS & CO., Watertown, Wis. 1tfdb

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

**CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.**

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22tfdb

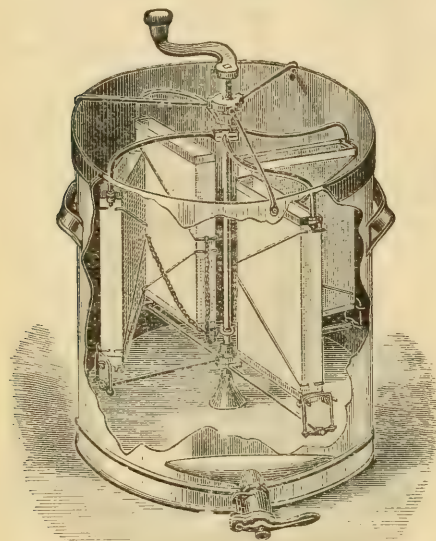
A. F. Stauffer & Co., Sterling, Ill.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfdb

Stanley's Automatic Honey - Extractor

STARTS ON ITS FOURTH SEASON BETTER THAN EVER BEFORE, AND WITH PRICES REDUCED TO SUIT THE TIMES.

Send for New Circular. Just Out.



Bingham Smokers and B. & H. Honey-Knives
WHOLESALE AND RETAIL.

Address **G. W. STANLEY,**
Wyoming, N. Y.

Oh! What's the Matter?

Smith & Jackson are selling bees by the pound; queens, and all kinds of supplies at rock bottom prices. Be sure and get their prices before buying, for you will save money by so doing. Price list of 1887 now out. **SMITH & JACKSON,**

9d Box 72. Tilbury Center, Kent Co., Ont., Can.

SECTIONS.

Nice white poplar, 4-piece all dovetailed, 4¼x4¼ sections. Send for prices.

9-12db **S. D. BUELL, Union City, Mich.**

LOOK AT THIS!

My improved Smoker can be taken apart to clean it by turning a button. Lay the tube on the coals and let it burn out. The valve will come off in the same way to clean. Send \$1.00 for a Smoker and see how well you will like it. I will please you or return your money. I have tested it all of last season in my apiary of 79 hives, and it gave perfect satisfaction. If wanted by mail, add 25 cts. to pay postage. Address **W. H. SMITH,**

9-16b **BROOKTON, TOMPKINS CO., N. Y.**

THE BEST NO. 2. SECTIONS

Ever sold for the price. Write for samples and particulars. **M. H. HUNT,**

9-11d (Near Detroit.) **BELL BRANCH, WAYNE CO., MICH.**

THE JOURNAL OF FISH CULTURE AND RURAL HYDRAULICS. CARP CULTURE A SPECIALTY.

An illustrated Monthly Publication comprising sixteen pages, size of other standard illustrated papers.

Edited by the Secretary of the American Carp Cultural Association, the senior Fish Culturist of America, and the acknowledged leading authority on Carp Culture.

It is the Only Publication of the Kind in the World, and the Only Generally Acknowledged Standard Periodical Authority upon the subjects upon which it treats, namely:

Fish Culture, Aquaria, Canary Birds and other Pets, Rural Water Supply, Agricultural, Sanitary, and Landscape Engineering.

SEND FOR SPECIMEN PAGES.

Rural Publishing Com'y,
14 North Fourth St., Philadelphia, Pa.
9d

A Cheap Smoker.

MARTINSVILLE, O., Apr. 11, 1887.

Messrs. Bingham & Hetherington, Abconia, Mich.:

Enclosed find \$2.50 for two large 2½-inch Bingham smokers (wide shield). They are for my neighbors. I have one of the Bingham smokers that I have used for six years, and it is as good as ever. Send for half-dozen rates.

Respectfully, **AMOS R. GARNER.**

PRICES OF BINGHAM SMOKERS.

By Mail, Postpaid.

Doctor Smoker (wide shield).....	3½ inch	\$2 00
Conqueror Smoker (wide shield).....	3 "	1 75
Large Smoker (wide shield).....	2½ "	1 50
Extra Smoker (wide shield).....	2 "	1 25
Plain Smoker.....	2 "	1 00
Little Wonder Smoker.....	1½ "	65
B. & H. Honey-Knife.....	2 "	1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address **T. F. BINGHAM, or**

BINGHAM & HETHERINGTON,
Abconia, Mich.

9-12db

FOUNDATION.

I will furnish foundation during the month of May and the fore part of June, cut to any size sheets desired, at the following prices: Heavy, 40c per lb.; medium, for wiring, 45c; light, for boxes, 50c; made on Vandervort mill. Wax taken in exchange at prices quoted in GLEANINGS.

B. CHASE, Earlville, N. Y.

Reference—Bradstreet's Report.

9-10d

INDIANA.—Headquarters for pure **ITALIAN** QUEENS. At prices that will surprise you. Write us for catalogue and full particulars.

MARTIN & MACY, North Manchester, Ind.

Eggs from high-class poultry for sale.

WANTED TO SELL.

100 3-frame nucleus colonies of hybrid bees,	
with queens, each.....	\$2 50
Two story Simplicity hives (complete) each.....	1 50
Chaff hives (have been used some) each.....	3 00
Highly bred hybrid queens, each.....	1 00
4¼x4¼ sections (V groove) per M.....	5 00

The photo of my apiary given as a premium on supplies purchased to the amount of \$5.00, cash orders. Will exchange nuclei colonies or ext'd honey for apiary supplies, if new.

7tfdb

J. M. YOUNG, Rock Bluffs, Nebraska.

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KIND WORDS FROM OUR CUSTOMERS.

I received the goods all right; thanks for promptness. Wife is well pleased with her poultry-book.
Blaine, Ohio. L. C. SEABRIGHT.

I got an A B C from you about six or seven years ago, and I like it better every time I look at it; in fact, it suits me the best of any thing on bee culture that I have seen yet. W. ATKINSON.
Cheapside, Ont., Can., April 7, 1887.

CAN'T BE BEAT.

Goods received all right. Many thanks. My wife thinks the thimble is just a daisy. The boy is delighted with the knife, and I think the saws can't be beat. J. BARLOW.
Sac City, Iowa.

OUR CARPET-SWEEPERS.

Goods arrived in good order. The carpet-sweepers are beautiful, and very cheap. The price of a similar machine here is \$3.50. Every thing is satisfactory, as usual with goods ordered of A. I. Root.
Middletown, Conn. C. H. LEWIS.

FIVE CONCORD GRAPEVINES.

From five Concord, four years old, last season, I got 300 lbs. of grapes. I think your A B C is a very nice book. It is interesting; anyhow, it is a book whose merits one can judge of by experience.
Buffalo, N. Y., Mar. 9, 1887. JAMES ROBINSON.

200 LBS. OF WAX FROM ONE OF OUR MACHINES IN HALF A DAY.

I received the foundation machine the 30th of March, all completed. It gives good satisfaction. I have rolled out 200 lbs. of wax in half a day. JOHN THILB.
Santa Monica, Los Angeles Co., Cal., Apr. 9, 1887.

STEREOSCOPIC VIEWS.

The goods arrived all right. The children say I must write you and tell you how pleased we all are with the stereoscopic views. All the goods gave entire satisfaction as usual. My bees are doing well. I am trying to be ready to fill your order for queens by return mail. J. D. FOOSHE.
Coronaca, S. C., Mar. 8, 1887.

A KIND WORD FROM J. E. POND.

My son, 17½ years old, has accepted Christ for his Savior, and I do think that GLEANINGS and you had much to do with it. The Home Papers drew his attention to the matter; at any rate, he is today a Christian, and I know that you will rejoice with me thereat. I tell you, Mr. Root, you don't know the good you are doing, and will never know it till the last day. J. E. POND.
Foxboro, Mass., Apr. 7, 1887.

"MAPLE SYRUP DECIDEDLY RICH."

Sections and maple syrup came to hand all right. The maple syrup is decidedly rich.

J. F. MICHALL.

German, Darke Co., O., Apr. 7, 1887.

FRAMES, NICEST EVER SEEN.

The box that did not come with the others has arrived with every thing satisfactory. The frames are the nicest I ever saw. My bees all answer to roll call, and in fine condition. M. C. YOUNG.
Centertown, Pa., Apr. 9, 1887.

PLEASED.

The goods ordered of you some time back arrived here all right. Let me express my heartiest thanks to you for always filling my orders so promptly. That brood fdn. is, I think, just the thing. The reversible frames, I think, will just answer to the roll. MATTHIAS SCHNEIDER, JR.

McIvor, Mich., Apr. 20, 1887.

GOOD MEASURE.

I received my goods the 15th of this month. Every thing came in good shape, and as it was ordered. Your goods have always been satisfactory since we have been dealing with you, which, I think, is ten years. You have a bigger bushel to measure your potatoes in than any seedsman I ever bought potatoes of yet. Your goods will recommend themselves. They are always put up neatly, and fit exactly. G. GASE.
Berwick, O.

[Friend G., the reason why we give good bushels is because we sell our potatoes by weight, 60 lbs. to the bushel. I have been trying to buy them by weight from those who advertise choice potatoes for sale, but I am sorry to say they don't hold out. A barrel is called three bushels, and most of us know to our sorrow that our barrels are of every imaginable size, and especially smallish when you are buying expensive varieties of potatoes by the barrel. Can't we have a reform in this matter?]

A FRANK APOLOGY.

Please find inclosed the amount for Terry's A B C of Potato Culture, which, if it is as good as its namesake on bee culture, should be in all farmers' hands. I owe you an apology which should have been made long ere this, but was neglected. About a year ago I sent to you for a queen. She came marked "untested Italian," but was, as I supposed from her appearance, black. I sent again for 2, which came all right; but I was ignorant enough to suppose all queens should be banded; and as this one was black I wrote you a rather severe letter, which I have regretted ever since, as she is the best queen I have. Her brood are all pure, and workers too. I sometimes think, when I see you getting "blown up" in GLEANINGS, that fully one-half of the mistakes are through the stupidity of such people as myself who are too prone to let the old nature assert itself instead of following the example of Him who, when he was reviled, reviled not again, letting his Spirit conduct and guide our every act. Now, brother Root, for though we shall never, in all probability, meet on this side of the great river, still I can claim you as a brother in Christ. I hope you will not weary in well doing, for eternity alone will reveal the number of those who have been encouraged and comforted through your instrumentality. W. J. KINCADE.

Kerwood, Ont., Can., Apr. 4, 1887.

[Very many thanks, friend K., for your kind expressions of me and my work, and especially for your very frank, straightforward apology. These kind apologies, after it is all over and perhaps forgotten, do us more good, sometimes, than kind words from a pleased customer. We hope all who read your letter will take a second thought before they enter any complaint.

We hope that all who have complained because the queens we sent out are not as yellow as many of the home-bred ones, will remember that the progeny of queens from Italy are not, as a rule, light-colored, some of them being almost black. The workers, however, are usually finely marked; and as honey-gatherers I do not know that there are any bees on the face of the earth any better than the progeny of Italians freshly imported from Italy.]

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey*.—Same as last reported.
April 22, 1887. PANCOAST & GRIFFITHS,
242 South Front St., Philadelphia.

ST. LOUIS.—*Honey*.—There is no change to report in honey. Market still dull.
April 22, 1887. W. B. WESTCOTT & CO.,
108 and 110 Market St.

DETROIT.—*Honey*.—Best white comb honey 11@12. Inferior grades very dull.
Beeswax, firm at 23c. M. H. HUNT,
April 22, 1887. Bell Branch, Mich.

CLEVELAND.—*Honey*.—There is an improvement in the demand for choice 1-lb. sections at 12@13c. Second quality dull at 10@11. Buckwheat unsalable at 8@9. Extracted, 5@6.
Beeswax,—25c. A. C. KENDEL,
April 21, 1887. 115 Ontario St., Cleveland, O.

BOSTON.—*Honey*.—Our maple sugar and syrup now interfere with the sale of honey, and we are having slow sales. White clover, 1-lb., 13@15; 2-lb., 11@13.
Beeswax, 26c. BLAKE & RIPLEY,
April 22, 1887. 57 Chatham St., Boston.

COLUMBUS.—*Honey*.—Market quiet.
White clover in comb - - - - - 14@15
" " extracted - - - - - 8@10
California comb honey - - - - - 10@12
" " extracted - - - - - 5@8
No. 1 white-clover honey is scarce in this market and is bringing full prices. Extracted is slow sale.
April 22, 1887. EARLE CLICKENGER,
Columbus, O.

CHICAGO.—*Honey*.—Honey is dull. Prices are weak. Best grades of white comb in one-pound sections, 11@12 cts.; any thing off from choice, 9@10 cts. Sections running over one pound, 8@10 cts.; dark, 7@8 cts. Extracted white clover and linn, 5@6 @7 cts., according to grade and package. Dark, 4@5. *Beeswax*, 25 cents. R. A. BURNETT,
April 21, 1887. 161 South Water St., Chicago, Ill.

CINCINNATI.—*Honey*.—There is a fair retail demand for choice comb honey, and extracted honey in square glass jars. Demand from manufacturers seems to be improving. We quote 11@14 cents for best comb honey in a jobbing way, and 3@7 cts. for extracted honey on arrival.
Beeswax is in good demand, and brings 20@23 cts. for good to choice yellow on arrival.
April 21, 1887. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

KANSAS CITY.—*Honey*.—We quote white clover, 1 lb., at 11@12 cts.; dark, 1-pound, 9@10 cts.; white clover, 2-pounds, 10@11; dark, 9@10. The market in extracted is almost bare of white clover, also California. We quote at 5@6 cts. in small way.
Beeswax, 23@25 cts. CLEMONS, CLOON & CO.,
April 23, 1887. Kansas City, Mo.

CONVENTION NOTICES.

The next meeting of the Northwestern Illinois and Southwestern Wisconsin Bee-keepers' Association will be held at Rockton, Ill., May 24, 1887. D. A. FULLER, Sec.
Cherry Valley, Ill.

The Keystone Bee-keepers' Association will hold its next annual meeting in the Court House at Scranton, Pa., May 10, 1887. All in the State and its immediate vicinity are invited to be present. Come one and all with your knotty questions. Interesting papers are expected from noted apiarists.
Clark's Green, Pa., Apr. 19, 1887. ARTHUR A. DAVIS, Sec.

The semi-annual meeting of the Progressive Bee-keepers' Association will be held in the Town Hall at Bedford, O., Thursday, May 5, 1887, at 10 o'clock A. M. Manufacturers of supplies for bee-keepers are requested to bring with them, or send, samples of their wares for exhibition. There will be a picnic dinner. All interested in apiculture are cordially invited to be present.
MISS DEMA BENNETT, Sec.
Bedford, Cuyahoga Co., O., Apr. 18, 1887.

CIRCULARS RECEIVED.

The following have sent us their circulars since April 1st. By an oversight, this department was omitted in our last issue. All the price lists are noticed hereafter, except those that have no date. See editorial, current issue.

J. O. Richardson, Walker, Iowa, an advertising sheet of bee-supplies.

F. J. Crowley, Batavia, N. Y., a 6-page circular of apiarian supplies.

J. P. Moore, Morgan, Ky., a 4-page circular of Italian queens and bees.

Joseph E. Shaver, North River, Va., an 18-page circular of bee-supplies.

G. D. Black, Brandon, Buchanan Co., Ia., a 6-page circular of bees and honey.

Ernst B. Hildeman, Ashippun, Wis., a 4-page list of potatoes and bee-supplies.

W. S. Dorman, Mechanicsville, Ia., a 4-page circular of bees and bee-supplies.

J. C. Bowman, North Lima, O., a 12-page circular of bees and Wyandotte fowls.

E. M. Hayhurst, box 60, Kansas City, Mo., an advertising card of bees and queens.

J. A. Green, Dayton, La Salle Co., Ill., an 8-page advertising sheet of bee-supplies.

Arthur A. Davis, Clark's Green, Pa., a 10-page circular of bee-supplies and windmills.

A. O. Crawford, South Weymouth, Mass., a 12-page price list of bee-keeping specialties.

R. B. Leahy, Higginsville, Mo., an 8-page (large size) circular of bee-keeping supplies.

P. D. Miller, Grapeville, Pa., a 6-page circular of Italian and Arkansas queens and bees.

D. Kaufman, Needy, Oregon, a 16-page list of apiarian supplies, and bees and queens.

J. T. Wilson, Nicholasville, Jessamine Co., Ky., an advertising sheet of Italian queens.

M. S. Koop, successor to A. B. Howe, Council Bluffs, Ia., a 20-page circular of bee-supplies.

John Hall, Station Hill, Wigton, Cumberland, Eng., a 6-page circular of bee-keeping requisites.

E. A. Sheldon, Independence, Ia., a list of apiarian supplies, printed on one of Martin's chromo cards.

H. H. Brown, Columbia, Pa., a 20-page circular of Italian and Cyprian bees, comb foundation, extractors, etc.

A. L. Swinson, Goldsboro, N. C., an advertising sheet of albino, American, and Italian queens. Also imported Syrians, Cyprians, and Carniolans, from Frank Benton.

PURE * ITALIAN * QUEENS

BRED FROM AN IMPORTED MOTHER,

Sent by mail; safe arrival guaranteed, from April until October. Tested queens, \$1.50; Untested queens, \$1.00; per dozen, \$8.00. Satisfaction guaranteed, or money refunded. 9-13db

Walter McWilliams, Griffin, Ga.

PURE ITALIAN QUEENS FOR 1887.

Tested	-	-	-	-	\$1.00
Select Tested	-	-	-	-	1.25
Imported, best	-	-	-	-	6.00

After May 20. Order early, as I shall have only a limited number. Address S. F. REED,
N. Dorchester, N. H.

PURE ITALIAN Bees and Queens,

Tested Queens	-	-	-	\$2.00
Untested Queens	-	-	-	1.00
Six Untested Queens	-	-	-	5.00

One-pound bees, 90 cts.; ½ lb., 60 cts.
Add price of queen with bees. 9d

T. A. PEW, MIDDLETOWN, MO.

BEEES FOR SALE.

15 Colonies hybrid bees, \$5.00 per stand in single-story hives; in double-story hives, \$6.00. Address 910d L. B. STANGER, Uniontown, Del. Co., Ia.





Vol. XV.

MAY 1, 1887.

No. 9.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90, 3 for \$2.75, 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

THE T-SUPER FEEDER, AND SOMETHING ABOUT ROBBING.

C. C. MILLER REPLIES.

I NEVER had any doubts as to the value of the remarks by the editor of GLEANINGS, appended to the contributions of the various writers; but if I had ever had such doubts they would all be dispelled after reading the remarks at the close of my article on page 305. I can readily see how an inexperienced person might have lots of trouble by using a leaky feeder over a very weak colony of bees. I certainly should not use one in such a place; but without the wise words of caution given by the editor, some beginner might. I don't suppose it would be much trouble to wax the corners, but some might prefer the simpler plan of putting water in the feeder before using, and letting it soak. I filled one with water, and it leaked a little; but before long it soaked up so as to not leak a drop, and I have no doubt it would remain perfectly water-tight till allowed to dry out again. I think, however, I would always give feed to bees in the evening, and then the leakage would be cleaned up before morning. However, your suggestion is wise: Try the feeder with water, and don't use till it is water-tight.

You say, friend Root, that the bees "would be very likely to build combs between the feeder and the honey-board." Now, here you have me at a decided disadvantage. I generally know pretty well what I am talking about; but in the present case I must confess I don't, for I never used one of these feeders. As a general rule, I don't believe in speaking favorably of anything till I have given it a fair trial; but in the present case I felt pretty

sure of my ground without trial; and as some who were adopting the T super might want a supply of feeders, it seemed too bad to let them invest in something more expensive without telling at once about this.

The T super is $4\frac{1}{2}$ inches in depth. The end-pieces of the feeder are $4\frac{1}{2}$ inches in depth, and the thickness of the bottom ($\frac{1}{4}$ inch) added to this makes $4\frac{3}{4}$, thus making the feeder come within $\frac{1}{4}$ inch of the bottom of the super. Add to this $\frac{1}{4}$ inch the $\frac{1}{2}$ -inch bee-space of the honey-board and we have a $\frac{3}{4}$ -inch space between the feeder and the honey-board (not "nearly or quite an inch," friend Root). I think it will be decidedly better to have the feeder just $\frac{1}{4}$ inch deeper, and then we shall have just the bee-space between feeder and honey-board, and it hardly seems to me they would be more likely to build comb under the feeder than under a super of sections.

Now, having gladly admitted the justice of your criticisms so far, I come to your last, and I just won't agree to that. You say, "I would not think of using such a feeder unless an outside shell be placed over it and the super." I have fed pounds and pounds of feed in T supers, with no outside shell, using Simplicity feeders and 6-quart tin pans, which would allow the feed to come as near the outside as the feeders in question, and I have no recollection of ever having had any trouble. The feeding was done, too, at a time when robbers were bad. As already intimated, the feeding was generally done in the evening; and, besides, my T supers are made of $\frac{3}{4}$ -inch stuff. The square joints are also quite true and close, so a bee could make but little headway biting through. Don't think I never have any had cases of robbing. I believe my bees will go through as thick a board as anybody's when

they are fairly aroused. Perhaps I had better say something about

WHAT TO DO IN CASES OF ROBBING.

And here again I will trust to your watchful care to see that I do not lead astray the inexperienced, for I am inclined to believe that, in a large number of cases, the very best thing to do in a case of robbing is to do nothing. Have you not sometimes had it happen, that, the first thing you knew in the spring, a hive was robbed and not a drop of honey left—bees and all gone? And if you didn't find it out till after the mischief was all done, did you ever know any further harm to come of it?—any adjacent hives robbed in consequence? But if you found it out while the robbing was going on, and moved away the hive that was being robbed, or shut it up, very likely there was trouble all around. Now, the whole thing in a nutshell seems to be something like this: Bees are very precise in their knowledge of locality, and the exact spot where they have commenced robbing they will visit again; and when all the honey is gone from that spot or point of entrance (perhaps provided they have finished the honey themselves), they decide there is nothing further to be done, and no surrounding hive is attacked. But if the meddlesome bee-keeper removes the hive which they were robbing, they know they left honey in that hive, and go to hunting for it, and thus attack the surrounding hives. So if any thing bees are robbing be removed, let some comb with at least a little honey be put in a hive in exactly the same place, and adjoining hives will be safe. Of course, see that all entrances are contracted in spring.

Yesterday I found the bees were robbing a colony in a double hive. They had been at it so long that it was not worth while to try to save what little honey was left (otherwise I should have taken out *part*), and I let them entirely alone. To-day they have left it, and another colony in the same hive, using the same alighting-board, with its entrance 8½ inches distant, is left undisturbed, although its entrance was left 3½ inches wide.

Marengo, Ill., Apr. 20, 1887.

C. C. MILLER.

Now, friend M., while we agree almost exactly on pretty much all these subjects that come up, there is one place where I, too, just *won't* agree—that is, if I understand you fully, but perhaps I don't. Let me explain.

When bees have got into a notion of robbing in an apiary, unless great care is taken it will continue to grow worse and worse until finally robbing is so much the order of the day and the excitement of the hour that your whole apiary may be so much absorbed in it they won't even notice the apple-bloom and clover when they come. If you have not had any experience in such a state of affairs, I can tell you that I have. At such times a pan of broken combs, such as is left after transferring, would be the ruin of almost any colony, if simply placed in the upper story; and if there were cracks through which the bees could get a glimpse of it, and a sniff of the broken combs, it would make matters ever so much worse; and I have never found complete relief from this kind of work until I adopted the Simplicity bevels and the chaff hives. Flat boards, cleated in the best manner I could devise, would warp and let a sufficient number of robbers get their heads through

the crack to raise the cover a little, and then they would get their shoulders under, and, in a little time more, away goes the colony where the pan of sweets was placed, and with it a queen worth perhaps three or four dollars. I would stop promptly every sort of robbing the minute I discovered it, and I would do this to keep them from getting into this mischievous habit of robbing. I have had good strong colonies overpowered and used up by just putting a pan of broken combs in the upper story; and I have been through whole seasons where robbing was so constantly going on that it spoiled all the pleasure and pretty nearly all the profit of the whole apiary. Later, after I had learned by sad experience, and had provided myself with better hives, I have so managed that scarcely a case of robbing occurred from spring until fall; and when bees are so carefully managed that they do not discover there is any way to get stores except from the flowers, we may leave combs of honey standing around with considerable impunity, and no bad results follow. I have sometimes thought it would almost pay better to brimstone an apiary of bees, when they had got well educated up to the business of robbing, than to do any thing else with them. I suspect that localities have a great deal to do with this. I often hear visitors say that their bees gather stores enough to be slowly increasing in weight during all the summer months. This is by no means the case here. We have many weeks together, right in the summer time, when a colony placed on the scales shows a loss in weight day after day. Now, my advice to the rising generation of bee-keepers is, to keep such a sharp, vigilant eye on the apiary during all the warm weather, that the bees never get a going enough to discover that stealing is among the possibilities. It just now occurs to me, that the same rule applies not only to kicking and balky horses, but to the younger ones of the human family as well. A stitch in time saves nine, in all sorts of vice, among bees or men. I quite agree with you, that moving the hive away when it is almost used up makes matters, for the time being, a good deal worse; but I would adopt it as the lesser of two evils. When it is almost night it may do to let them go ahead sometimes until darkness winds it up.

THE SMITH FORCE-PUMP, FOR BRINGING DOWN SWARMS.

THE USES OF FORCE-PUMPS.

FOR several years back, force-pumps have been recommended for bringing down swarms while in the air. We have never tested them ourselves, for the simple reason that we do not allow swarming to any great extent. However, if we were situated as some are, there is no doubt it would be a good investment to have a pail of water and a Smith pump in the apiary, convenient for emergencies of this kind. It is said, that the bees are led to believe a shower is coming up while being sprayed.

Whether or not this be true, the wetting of the wings would certainly have some effect in disorganizing their flying apparatus; and it might induce them to return to the hive immediately, or cluster upon the nearest available object. In the engraving the apiarist is shown in the act of giving the bees a shower-bath with the Smith force-pump. Unfortunately, however, the artist has represented the bees as being clustered, and I can scarcely imagine what desired effect could be had from spraying the swarm after being clustered, unless the apiarist were afraid that the bees might leave the limb and immediately thereafter start for the woods. The spraying of the bees would

it would not be as convenient for spraying bees on a chase, the pail could be carried and set down beneath a large body of the flying bees. It is superior to the Whitman, in that it will send a larger stream to a greater distance.

Any of our readers who are desirous of testing this matter of the possibility and the utility of the force-pump in bringing down swarms can do so with the Smith pump, and yet not be at a very great expense in making the experiment. If it is not successful in operating on swarms, it certainly is a very convenient thing to have around for fires, washing windows, watering gardens, spraying currant-bushes with a liquid that



SPRAYING A SWARM WITH THE SMITH FORCE PUMP.

probably compel them to remain for a little while, or at least until he could make such arrangement that he could hive the bees. Ordinarily, however, I believe the idea is to wet the bees while flying, in order that they may be speedily induced to cluster. We have had reports of the Whitman pump being used for this purpose, and, if I am correct, swarms were induced to settle. The Whitman pump, however, costs more money than most apiarists care to invest in any thing that will be uncertain as to its utility in bringing down swarms. The Smith force-pump, at the present price of \$1.00 each, is within the reach of all: and while perhaps

is death to currant-worms, for cleaning out worms' nests in fruit-trees, and for renovating chicken-coops by spraying the inside with a thin solution of whitewash. In regard to cleaning out worms' nests in fruit-trees, I would say that this was one of my jobs when a small boy. With a force-pump and a pail of water I could blow the worms' nests to pieces in short meter, and it didn't matter how high above the ground, or how inconveniently the nest was situated, the pump would scatter the worms like a small charge of dynamite. It was only last summer that I had a patch of thrifty growing tomato-vines in the back yard. They were

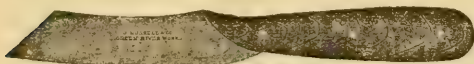
located some 50 or 60 feet from the pump. In dry times we had to carry our water in pails from the pump to the vines—an operation that was rather long and tiresome. One evening the thought struck me to try the Smith force pump. I went over to the factory and got one and stood it in a pail of water right under the spout of the cistern-pump. The idea was a very happy one, for I could stand right there at the pump, single out each plant, and give it all the water it wanted, without moving a step. As fast as the pail was emptied I stood without moving a step, and turned the handle of the cistern-pump a few times, and the pail was full again. Now, if those tomatoes didn't grow, and if we didn't have nice tomatoes, it was no fault of the Smith pump. In the same way I have drawn up our buggy within a convenient distance of the cistern-pump, and with the Smith force-pump I could just deluge the thing without being obliged to put on overalls or any thing of the sort, until I was ready to sponge the buggy off.

After testing one or two of the cheaper grades of force-pumps, we have given our preference decidedly in favor of the Smith. It works very easy, in consideration of the large quantity of water it throws, and the distance it forces it. On this account, in case of fire we think the Smith would do better execution than the majority of higher-priced force pumps on the market. If any of you are desirous of knowing the height to which you can send a stream, I would say that, on several occasions, we have easily sent a pretty good-sized stream of water clear on top of our factory.

OUR TEN-CENT KNIFE FOR CUTTING UP SEED-POTATOES.

THE ONE, ALSO, RECOMMENDED FOR KITCHEN USE BY DR. MILLER.

BELOW we give you an engraving of the knife that has been mentioned by Mr. Terry and Dr. C. C. Miller for a kitchen-knife, and for a knife to cut up potatoes to plant. You will notice, that the handle projects in an odd sort of way up along the blade, to give a rest for the forefinger, spoken about on p. 258. The blade is the J. Russell & Co.'s finest steel—the same, in fact, that they use for our Novice honey-knife.



OUR TEN-CENT KITCHEN-KNIFE.

The special feature of this knife is in having the blade so thin that, when it passes through a potato or apple, there is scarcely any resistance. Then the keen sharp point is just the nicest thing that can be imagined, for cutting out the eyes or objectionable spots. It is also an excellent knife for paring and coring apples. We are enabled to furnish them at the low price mentioned, by buying them in great quantities. If wanted by mail, add 4 cts. extra for postage.

THE SPIDER AS AN ENEMY OF BEES.

A COUPLE OF INSTANCES IN POINT.

AT various times, writers in GLEANINGS have pronounced the spider a friend to the bee-keeper. It seems to me that this statement ought to be received with considerable allowance. A year ago I prepared a number of cases of sections, a considerable time before the honey-harvest began, and piled them on top of each other until I should need them on the hives. When placed in position at the proper time the bees promptly took possession of nearly all; but there were several very strong colonies that resisted every effort to force them into the sections. I reversed combs, uncapped honey, and contracted the hive space, but all to no purpose. It never occurred to me to see if any thing was wrong in the cases; but at the end of the season I found that each case was occupied by several large and exceedingly vigorous spiders. They had taken possession before the cases were given to the bees, and they held possession all summer at an expense of several dollars to me. I doubt very much if the most aggressive colonies would have the courage to displace such intruders.

But it is not at the hive alone that the spider is a nuisance to the bee-keeper. Several years ago I was amusing myself in the flower-garden one morning by pulling open the corollas of pinks that a bee had been vainly trying to enter. When it thrust its head into the narrow opening I would pull the petals apart so that it might reach the nectar at the bottom of the cup. At length the bee alighted upon a cluster of flowers on which was a small green spider not more than a quarter of an inch long. For a full minute the insects regarded each other without moving, then with a sudden spring the spider seemed to clasp the head of the bee for an instant with his anterior legs. In a moment he retreated to the further edge of the flower-cluster, and the bee rolled to the ground dead. Before the spider made his spring the bee seemed dazed and confused; and my wife, looking on, begged me to interfere for its protection. But I believed the bee was safe against the attacks of such a puny enemy, and I could hardly believe the evidence of my eyes when I held the dead bee in my hand. I can not think of the incident yet without a feeling of regret.

Who can tell how often these tragedies of the fields are enacted? The spider is everywhere; and if it is habitually so spiteful and venomous, it deserves to be ranked among the most destructive enemies of the bee. It is, undoubtedly, an excellent protector of empty combs, but beyond this I consider its usefulness to the apiarist as ended.

Denison, Iowa, Apr. 18, 1887.

Z. T. HAWK.

Friend H., the point you make is, no doubt, a most important one, and I should like to ask if others have had a like experience; and we want Prof. Cook to tell us, if he can, what spider it was that killed that bee, and by what means he did it. There are surely spiders enough at the college museum to include this very chap. If I am correct, spiders have no means of killing their enemies except by a mechanical operation; that is, they have no poison-bag nor poisonous spittle, neither is their bite poison-

ous. How, then, did this spider kill the bee so quickly? The bee is quite tenacious of life, as many of us have discovered when trying to kill an angry bee. I know a great many claim that spiders can bite, and that their bite is poisonous. Prof. Cook declares this is all fallacy and superstition, unless I am mistaken.

N. C. MITCHELL.

GOOD NEWS! HE HAS GIVEN UP SELLING FARM-RIGHTS, ETC.

OUR older readers will remember that, for a series of years, we were obliged to caution the public about sending money to friend Mitchell. For four or five years back, however, we have heard but little in regard to him; but within the past few months several friends have forwarded us his circular, with a drawing and description of the National Bee-house. We notice by this circular that Mr. Mitchell has discontinued selling rights—at least, the circular reads as follows:

We have no farm-rights to sell you now at any price, for the reason that, if we did so, not one of you in five hundred would know what to do with them, and you would be no better off than you now are with the hives that you already have in use.

This, certainly, is true, and, I believe, honest. It does us good to be able to find some point on which we can gladly shake hands with our old friend. He advertises a new honey-extractor, better and cheaper than any other in use, for \$2.00; also a new apparatus for making comb foundation ready for the bees; net cost, \$1.50. We suppose these things are to be sold to the members of the class which he organizes in each place; and if the customer receives the article as he hands over the money, we do not see that there can be very much fault found.

Now, I wanted to close this notice without finding any fault; but I feel really obliged to say to those who have had no experience with Mr. Mitchell, be sure and not pay him a cent of money for any thing that is to be shipped you or brought you some time in the future. Below is a letter forwarded to us by one of our subscribers. It was directed to Watertown, Washington Co., O.

To any Bee-keeper:—Will you kindly permit me to ask a few questions? I spent, last week, a day in Perry County, and was surprised to find your hilly country the greatest honey-producing county in Ohio. I will visit your county soon, with the view of finding a good location to start a large apiary. We want a location where fruit can be had in quantities at fair prices, and where blackberries and other wild fruit may be got in large quantity. We are now putting up fruit canned in honey. If you or any of your friends can give me the desired information you will confer a great favor upon us. I never knew until recently of your honey resources, or I would have been with you long ago. Address me at Columbus, O. N. C. MITCHELL.

Columbus, O., Apr. 7, 1887.

Canning fruit in honey is surely a laudable undertaking, and we wish our friend success

in the matter, even if he does teach his pupils by classes at a dollar each for a single lesson.

YOUNG CARP IN APRIL.

A LETTER FROM MILTON P. PEIRCE, EDITOR OF THE JOURNAL OF FISH CULTURE, ETC.

NOTICE your remarks under the above head in GLEANINGS for April 15th. I think you must certainly be mistaken about those tiny little fishes being carp, for those the size of a cucumber seed would ordinarily be but a few hours old, and surely there could not at that date have been any spawning—much less, hatching—for it is even yet too cold at this date (Apr. 20) for either. The conclusion forced upon me is, that they are some small variety of native pond-fishes. I have had many specimens sent to me by mail (dead, of course) for identification, but under the firm belief that they were our food-carp. They have always been tiny specimens of native brook or pond fishes. Had your date been one month later, I should not have thought that you had made a very common mistake.

In regard to sending carp in wet moss: I have several times tried the experiment, not only with moss, but with clean sponge and other apparently suitable material, but only with trifling success. I have, however, during the past winter sent 100 very fine-bred, parti-scale carp, in a peculiarly constructed tank, to the City of Mexico, a trifle over 3700 miles, and 95 of the 100 reached there alive and in good condition. Another shipment, sent this spring, from the same stock and in the same kind of tank, over the same route (as I suppose), certainly by the same express company, were all dead before they had crossed the State of Texas. I have for years expressed the opinion, that carp should not be shipped in the spring. Their vitality is at the lowest then; whereas, in the fall and early winter they are in the most hardy condition of any portion of the year.

I much regret, friend Root, that you, who have so excellent an opportunity to aid this promising industry, do not engage in it in a systematic manner. You have a very good site for the purpose, and ample facilities for a model establishment, such as would induce hundreds of others, not only in Ohio, but elsewhere, to start right, or remodel their present crude establishments. M. P. PEIRCE.

Philadelphia, Pa.

Thanks, friend P., and I am sorry to be obliged to admit that you are right about it, for I caught some of the minnies and found them to be little fish just like those in the creek. Now, can you tell us how in the world they got into our pond? It is so much above the water in the creek, that overflow is out of the question; and the only way in which I can account for it is, that the brook fish must have got in through the holes the musk-rats cut in the banks of the pond, letting the water out. I suppose the only remedy is to draw the pond dry and kill all these spurious fish. The reason I do not go into carp as you suggest, is such as is given in my reply to friend Terry, on strawberries. If Blue Eyes, Caddie, or even our four-year-old Huber, should get a fever for raising carp, then the way would be open.

ANOTHER WAY OF EMPTYING THE T SUPER.

WITH THE T TINS STATIONARY.

FRIEND ROOT:—I suppose, from what you have repeatedly stated, that you are often burdened with more correspondence than you desire or can make use of, and for that reason I have kept silent many times when I fairly ached to put in a word upon some current topic under discussion; and when I saw in GLEANINGS for April 1st the description of C. C. Miller's method of removing sections from surplus cases, I thought I would venture to give a brief account of my way of doing the same work; for you know that, when we have what we believe to be an extra good thing, it affords us pleasure to compare notes with our friends.

I use some surplus cases similar to those of friend Miller's, except that I fasten the tin T's permanently in their places. To get the sections out of the cases, as thus made, I have a bearing-board, with upright blocks $4\frac{1}{2}$ inches high fastened upon it, corresponding to each row of sections in the cases, and with spaces between the upright blocks to allow a passageway for the tin T's when the case is pressed downward. This bearing-board is placed in a machine made for this purpose; a case of sections is set upon it, there being stays on three sides of it to hold it squarely in its proper place; then by means of a treadle a follower is brought to bear upon the entire length of the opposite sides of the case, in such a manner as to force it downward evenly all around at the same time, the follower having guides which hold it firmly so that one side or corner can not get in advance of the other parts and twist the case out of shape, and thereby cramp and break the sections. If a steady gentle pressure does not separate the case from the sections, let up a little on the treadle. A spring lifts the follower upward, then a quick downward motion will give the necessary force to break any wax or propolis which may be holding them together, and the case will slip down out of the way. The sections will be left standing on the top of those upright pieces upon the bearing-board, ready to be removed. I also remove sections from the wide frames with this same machine, but have a different bearing-board.

Now, friend Root, for the sake of brevity I have not entered much into detail in the above, but have simply given an outline of my way of getting sections out of supers.

JOSHUA BULL.

Seymour, Wis., April 16, 1887.

Many thanks, friend B., for your suggestions. I have no doubt that the plan for emptying the T super with the T tin stationary will answer excellently. If I am correct, Mr. Heddon has a follower something similar to yours; but I believe you have improved it a little by means of the foot-power attachment. If with your attachment the super can be emptied of its contents as quickly and easily as friend Miller does it, I don't see but there would be considerable advantage in having the T tins stationary. I believe, however, there is another advantage, with the loose tins, the super can be filled easier. When you have a good thing, friend B., and fairly ached to let it out don't be afraid of the everlasting "waste-basket." We always try to arrange

it so that communications of general interest shall appear; but sometimes we are so flooded that even good articles have to be held over for some time.

OUR P. BENSON LETTER.

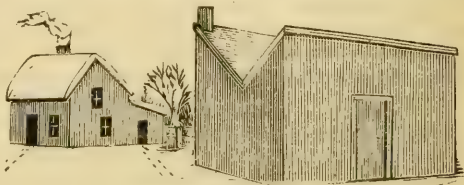
THE WINTER APERRY.

I PROPOZE to organize a winter aperry. It is well nigh that the most prophetable way to maik butter is the winter dary. Simmilarly likewise it's the same with bees. Summer aperrys is going out of stile, and winter aperrys will be all the go. The man which wants to maik munny at the bee bizness must git a winter aperry.

The advantiges of a winter aperry is too tejus to remunerate. But I will sho a phue points in which it is soupeeryer to summer. Jennerly winter izzent so hot as summer and yure apt to swet moar in summer and it makes the bees mad to see you swet.

Next, the winter aperry is not out door but in under shelter. This makes it suitful for dellykit ladies, which they doant like to spoil thair complekshens in the hot sun in summer.

Agane, evry buddy hed ot to keep a winter aperry on aekount of bekow all others keeps them in summer, tharefore the competishen will be less.



MY WINTER APERRY.

The winter aperry is constructed with (4) four walls and a dore and a glass roof. The roof is the grate feetyour of my winter aperry. It is egg-zackly opposit a house roof. Whair a house or a barn roof goes up the winter aperry goes down and visy-versy contrarywise, the hiest place in the roof of the winter aperry is jist whair the house roof is lo. The object of this will be quite a parent on a little refleekshun. It is to collect the rays of the sun, for the common roof maiks the rays of the sun slide off and the roof of the winter aperry ketches them. A sub-ventillater shaft starts (3) three feet above the ground and cums out at the roof to let out the rays of the sun when thay git too noomerous.

Sitch is the the prinsypull points of the winter aperry. The rest is eazy. Git my winter strane of bees, and feed them out of my youreeky feeder and thay will maik moar hunny than in summer, for you see the bees kant git out of the winter aperry and git lost like thay do when thay fly off in summer. Bees doant dy in summer; you ken see that by looking at a hive; thay jist fly off and git so far thay never git back.

I grate advantage of the winter aperry is that bees doant sting in winter. Hwo ever herd of bees attactin enny buddy in winter? So you see if evry I kep a winter aperry, it woud avoid the necessity of a law soot.

P. BENSON, A. B. S.

A. B. S. is fur Apiculturistical Bee Keepin Sigh-entist.

WINTERING BEES UP TOWARD THE NORTH POLE.

Without any Stores Whatever.

W. F. CLARKE'S HIBERNATION THEORY ESTABLISHED FINALLY ON A FIRM BASIS.

AS I happened to be down from the north to see a friend here in Ontario, I was reading your bee-paper. I noticed something in it about bees being frozen in the snow over night, and coming to life again, and your remarks as to how long and how low a temperature they would bear, and come back to life. I have found to my astonishment, that no one seems to understand how to winter bees without food and without much trouble, and with a certainty of having them all in the spring, and especially to have strong colonies in the spring, both in Canada and your country. I expected to learn something new and improved about keeping bees when I came down from the north; but, as I said, I was astonished to find I could learn nothing on wintering bees.

Where I came from is north of Nipising, about 150 miles from the arctic salt water; namely, James Bay, a wing of Hudson's Bay, in a great plain where bloom abounds for about two months. The honey-flow is great while it lasts. We get about 200 lbs. per colony; but if we wintered them the way you and others do, we could not get more than 25 lbs. of honey from each colony, because the bees would consume all, or nearly all, in the winter and non-productive months.

Now, for the good of your people as well as for Canadians, I will tell you how I manage mine; but I must be honest, and tell you it was not my own finding out. I learned it from an Indian who had never seen a white man until I straggled into his country. We became friends, and he told me his secret. I saw there was money in it, and went in with him. We have well nigh made a fortune. We got our honey down a tributary of the Ottawa, and paddled it down, and then returned in time to put our bees away, then hunted and trapped all winter. We generally had 25 Indians with canoes, with some small rafts attached, to take down our honey every fall, after the fourth year; but we never had much left when we got to Ottawa. We traded it to Indians for furs, on our way down, often doubling and trebling the price. As each canoe was unloaded we let it return, and so on. That was ten years ago.

You and your readers will perhaps wonder how I got there, how I came to stay there, and how I could talk to a wild Indian, and so on. Well, my story is easily told. I was crossed in love. I went north into the forest, with a gun and knife and dog. I fell among Indians, learned to talk their language, and, as I said, I straggled into this man's territory. He is a chief. I finally married his daughter, and we are a happy family all round, mother-in-law and all. We have five children, healthy and plump, and as nimble as otters. Well, to business.

The old man found the secret by accident. He fell a bee-tree late in October, and took the honey. The bees clustered under a hollow piece of wood, and there came a fall of snow that night. He went to see if he could find more honey next day. He looked at the bees, found they were numb, but would come to life when he warmed some in his hand. He conceived the idea that, if he would cov-

er them up in snow, they might keep that way till spring. Accordingly he covered them with bark, then with snow, so no frost could reach them. As soon as spring opened he went to them with a log hive he had prepared, dug them out, put them in, and carried them home. When they got warm, all but a very few began to crawl and finally to buzz. He fed them maple syrup that he had just made. They did well. We made our hives of elm bark, by peeling it in June. We had to employ help. We pressed it around a square block of wood, let it dry, then sewed one seam. We made all one size, so we could set one on top of another, each one a foot square inside, 14 inches deep. We use no foundation. We manage to get the top hive full of clear white comb. We take all of the best out of the bottom; but how do the bees live over winter, with no honey after the middle of October? Well, they don't live—at least, they eat no stores. Here is the way we do it:

The first cold nights we uncover the hives so they will get perfectly cold through, then keep them in a cool place in the shade, with covers on loose, so as to keep them dry. As soon as there comes a good fall of snow, which always comes there before hard frost, we have a cave into which we pack a lot of snow, then lay dry bark on it, then the hives, then cover with dry bark, then pack about two feet of snow over them, shut all up, and cover all over nicely with snow. We never look at them till about the first of May; but if there comes a thaw we are careful not to let any wet get down. We do this by packing more snow on, and cover with green hemlock brush, so as to keep the sun off the snow. When it begins to thaw rapidly, and spring is upon us, we dig the bees out, set them in the sun with covers off; and if it is a fine warm day we have them humming in a few hours. We cover them at night, uncover them next day, and cover at night again for the last time. Our bees are all in full blast in three days, carrying in pollen. The hives are in full strength—no sickly hives, no spring dwindling. By the first of June we have on the top hives. The only danger in putting up bees for winter our way is, if there are any hives with the least warmth left in them the bees will come to life, then smother, or starve—at any rate, die they must, and be worthless. We never lost more than two hives in that way in eight years. I now think you can all understand the cold plan of wintering bees. I suppose it would be more difficult where the winter is not cold enough. If you or any other bee-man would like to communicate with me or my father-in-law and partner, Eagle Muskegoon, about our bee-business and management, he can do so, and can reach us by writing to my friend George Watson, Alliston, Ontario, who has a way of communicating with us. He keeps bees, and intends to try our plan next winter. He has lost most of his bees this winter already, and there is another month before they can fly here yet. There is good sleighing here now, and nearly as cold as January.

This was written for me at my request, and for the good of my fellow-men, or as many as it may concern. My letter is long, but I should like to tell you something about the effect of honey by its use with Indians. The three youngest of my father-in-law's children, who were born at and after the time he began to have plenty of honey, are of much better complexion than the others. My children are soft, clean, and bright-skinned—a kind of "English

cream-color." My wife has noticeably improved in complexion too, and I verily believe all this came from the liberal use of honey as a diet; but it is not only in the ones I have mentioned that the effect is noticeable, but in several other families as well; and from those facts I have not the least doubt but that if white people, especially those who are dark, or troubled with pimples on their face, would use honey liberally, it would improve their color and give them a clean, smooth skin. It would be much better for young ladies than all the potions, washes, and sham drugged stuff they are eternally buying to beautify themselves.

I am, sir, yours in bee-love,—DANIEL MCFADDEN.

I am sure, dear friend, we are very much obliged for your kind letter; but we should have been better pleased to have had your address in full, or at least your *nearest* post-office, if there are no mail facilities near you. As it is, we hope to hear more about this wonderful experiment, through your friend George Watson. Bees have over and over again been wintered with so small an amount of stores that more than one of the bee-friends have been almost persuaded that the bees could live for months, as you state it, without any food at all; but yet all experiments made directly to prove this have somehow failed, and most of us have settled down to the belief with Prof. Cook, that bees do not hibernate. Perhaps in a climate like yours it is possible to secure a cave with a constant temperature a little below the freezing-point; and although it seems to us now that there must be some mistake somewhere, and that your bees had just a little stores when they started in their long winter, we are open to conviction, and I have to-day directed a letter to George Watson, asking him what he can tell us about you and your strange communication.

THE T SUPER.

WHAT SHALL BE USED TO SPACE OUT THE TOPS OF THE SECTIONS?

FRIEND ROOT:—GLEANINGS seems to be largely occupied with the T super lately—perhaps more so than some may desire; but I always like to see a thing discussed in a way that will bring many minds to bear upon it. I believe that our bee-periodicals have done more good by taking up a subject and discussing it thoroughly than they have in any other way. Of course, there is a time when such discussion becomes mere repetition, and then it is time to turn into some other channel. This is my excuse for presuming to write any thing more about the T super, for I do not think the subject is yet entirely exhausted.

First, I wish to say that my experience with 25 of them, for two seasons, has been such as to corroborate almost every thing that Dr. Miller has said. I wish to dwell upon a few points that he suggests on page 247, in his review of my former article.

The supers that I have been using are just the least scant 17½ inches in length, inside measure. They are too short. They can be used, but they are too difficult to fill with sections, as the sections strike upon the tops of the T's. I have made one

17½ inches long, and filled it with sections, to see how it would work. I think this is just about right. I feel very sure that any one who makes them shorter than this will regret it, also that there is no necessity for making them longer. But this length leaves a space between the rows of sections that I never could be contented with; there must be some way of filling it. I tried the T tins on top, with two or three supers, last summer. It accomplished one thing perfectly—it holds the sections square; but it is objectionable, because of the lines of glue that are placed where the tins meet the tops of the sections—right where we want our sections the cleanest. Also because it necessitates a special T tin, or a separator less than 3½ inches wide, or the reduction of the tins to less than ¾ inch in depth; for to try to use a T tin on top that figures say will just touch the separators below, will never do. I do not like either one of these three choices.

Dr. Miller also suggests that, in place of a T tin on top, merely a straight piece of sheet iron or heavy tin be used of the proper length, and of a width so it will rest on the separators and come just to the tops of the sections. This holds the sections square, and prevents the gluing. If heavy tin is used, let it be ever so heavy and it is too frail. It will always be getting bent and kinked out of shape.

The sheet iron may do, but I think I know of a plan better than either. Take a piece of tin of the right length and width, and bend so the end will look like this . This makes a bar stiff enough so, with any fair treatment, it will not get bent out of shape; it is also folded so that it is the same thickness as the T tins are below it, and both edges are rounded, making it nicer to handle and easier to insert between the rows of sections. What can you furnish them at, friend Root?

Now about the size of the T tins. Dr. Miller's are ½ inch deep, and, as I understand it, you are making them so. Mine are only ⅜; and if they were only one-half as strong as they are they would be just as good. Now, if they are made only ⅜ they let the separators down where I think they belong. My separators are 3½ inches wide, but I rather think, as Mr. Heddon said in March 15th GLEANINGS, that 3¾ would be better.

WINTERING.

I winter in the cellar. Winter before last I gave upward ventilation by slightly raising the cover, which is merely a cleated board lying on the hive. Bees came out weak. Last winter I left the covers glued down tight. Bees seem to be in good condition this spring—all alive. They were somewhat stronger last fall, however, than the year before.

Iowa City, Iowa, Apr. 9, 1887.

WM. DREW.

Thanks for your suggestions, friend D. For the inside length of the T super, 17½ is about as near right as we can get it. We have made all ours that way, and, so far, I believe we are on common ground; but we are not so decided as to what would be the proper width of the T super. Dr. Miller has the inside width of his super exactly 12 inches. Ours is 13½. The supports on our T tins are ¾ inch high. If they were ½ inch high we could not, of course, use separators 3½ in. wide, with another T tin on top. For those who may prefer to use the T tins above, we decided upon the height of ¾ of

an inch, and we believe there is no disadvantage in changing from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch. The point you mention, that, when the T tins are used on top, the bees propolize along the edges of the T's, has been suggested by others. Our friend Mr. M. G. Chase, of Whittlesey, Medina Co., O., uses only such comb-guides as are used in the Simplicity frames. These comb-guides he cuts off the proper length, and drops them down on the separators between the sections. We believe that the folded tins you speak of are better for the purpose. We can furnish them $\frac{3}{8}$ of an inch wide for 60 cents per 100; postage, 60 cents.

DRONE COMB.

WHEN AND UNDER WHAT CONDITIONS THE BEES BUILD DRONE AND WORKER COMB IN THE SOUTH.

WHEN reading Mr. W. Z. Hutchinson's article on drone comb, Dec. 15, 1886, page 969, I was very much struck with the points he made in the article, in reference to bees rearing drones, and the building of drone comb. The experience that he gives is very much different from mine on a few particular points.

He says: "Many have reported that their newly hived swarms built drone combs when the queens were *not* old. True; but, look'e here; they didn't raise any drones." Yes, sir! at least, if they didn't I have had them do so. It is seldom the case I can have a swarm on empty frames, even when the queen is less than one year old, but that it will build at least as much as one full L. frame of drone comb in 8, and rear drones, and keep them, too, till fall. I seldom ever have a hive of Italian bees that kill out their drones before September. Few drones are kept by black bees after June 20th, although they rear them, the same as the Italians do, throughout the entire spring and summer. Mr. Hutchinson also says, that bees build drone comb to store surplus in, when they are storing it rapidly. He says: "And they can store it faster by building store or drone comb than they can by building worker comb." I think myself that they can do it, but certain it is that they *don't* do it here in our climate, when they are storing honey rapidly, but invariably build *worker* comb when honey is coming in fast. As soon as the honey-flow is pretty well over in the spring, with very little surplus being stored in the sections, the bees begin to build all their comb in the sections of drone comb. They build but little else the rest of the reason, unless we happen to have another pretty heavy honey-flow. In the event that we do, the bees at once resume the building of worker combs in the sections, to store their surplus in.

I can nearly always tell at a glance, when I open a hive, whether honey is coming in fast or slowly by the kind of comb the bees are drawing out in the sections. When they have a section 6 inches square, built half down in drone comb, and honey begins to come in freely, they at once change and finish out such sections in worker comb. Now, why is this, unless it is to economize in the production of wax? Then, again, why such a difference in our bees in building combs? Certainly it must be due to the difference in climate.

If, then, these differences are due to climate we should always, in reading after various writers, especially when there is a very radical difference in their experiences, take into consideration the difference in climate as well as other conditions.

I transfer bees from box hives into movable-frame hives, comb and all, such as is suitable to use again, for my neighbors, at 50 cts. per colony. All are black bees, of course. I have transferred 15 and 20 hives at a place; and many, sometimes half, the number of hives, would be half drone comb throughout the entire hive. A. L. SWINSON.

Goldsboro, Wayne Co., N. C., Feb. 7, 1887.

Friend S., my experience indicates that drone comb is built when honey is coming in the fastest, and I supposed it was for the reason you give, only it seems to me it is the drone comb that takes the least wax and the least labor, while worker comb takes the most wax and the most labor. I agree with you, that some colonies fill worker comb, even during a heavy flow, while others change over to drone comb where they had commenced starting worker; and they build this drone comb, it seems to me, with much greater rapidity than they could possibly spin out the worker comb. I have also noticed, that when an old colony was preparing to swarm they would fill an empty frame with drone comb with almost incredible rapidity. In this case the comb would not be very nice or very true; but it often has the look of being gotten up with very little care or attention.

AN EXPEDITIOUS WAY OF REMOVING PROPOLIS.

HOW TO HAVE CLEAN HANDS AND CLEAN CLOTHES.

PERHAPS some of your readers would like to know of a convenient and cheap way to remove bee-glue from the hands. With me it is cheaper and better than alcohol, ammonia, or any thing else I have tried. I have some slacked lime handy where I wash my hands. After wetting them I take some of the lime and rub them thoroughly with it, re-wetting them and using more lime if necessary. Thin whitewash does even better. When washed off, a little vinegar will make the hands feel natural again. As my business is "looking down in the mouth," as it is said of dentists, it is quite an item with me in bee-keeping to be able to get my hands in a presentable condition on short notice, when some one calls to have dentistry done.

The plan above has been satisfactory with me for the last eleven years; but week before last I found, or rather Mrs. Mason suggested, something that proved to be better. It "used to be," that, when I got any propolis on my white shirt or "brichaloon," she would give me a little talk for being so careless; but it would get on in spite of all the talking she could do. She doesn't talk to me any more about it now, and it is such a relief! Two or three years ago she came across a recipe for a first-class washing-fluid, and she won't wash without it. Some of our neighbor women are just as notional about it as she is; and if all of the lady readers of GLEANINGS who have to wash, not dirty *men's* clothes but *men's dirty* clothes, will try it I don't

believe they will want to get along without it unless they have something better.

Here is the recipe: One pound crystal potash; one ounce strongest aqua ammonia; one ounce borax, and one gallon of soft water. Put all in a jug and keep well corked. Use half to two-thirds of a cupful, and about one inch shaved off an ordinary bar of soap, to a boiler of clothes. Soak the clothes over night; wring them out in the morning, and boil without rubbing; rinse thoroughly and you will be delighted to see how white the wash will be. Mrs. M. uses soft soap, and uses the fluid in soaking the clothes also, and rubs the dirty spots.

Week before last, one warm pleasant day I set some of my bees out of the cellar for a flight; and in looking over some of the colonies I got my hands more than usually daubed with propolis, and then, of course, a lady had to call to have some teeth filled. My hands were in a pretty fix. It being winter, there was no lime at hand; and alcohol, ammonia, benzine, turpentine, and coal oil were too slow coaches, in my hurry. My better half came, as usual, to my relief by suggesting that I try the washing-fluid. She poured two or three tablespoonfuls in the wash-dish, and I "showed my faith by my works." My! but that propolis was awfully scared, I verily believe, for it left my hands almost instantly, and they felt as though the skin might be wanting to keep it company; but some vinegar stopped such a proceeding, and I had some clean hands. The memory of the oldest inhabitant at our house doesn't reach back to the time when they were made so clean in so short a time. I shall use the washing-fluid to remove propolis in the future; but unless I forget it, it will be diluted some before my hands get into it. It may not come amiss, although not new to many, to say that, when the roughness of our hands gets filled with dirt that soap and water don't remove, we put twenty or thirty drops of aqua ammonia, more or less, in a wash-dish and add two or three tablespoonfuls of soft water, and wash the hands with it. It is pleasing to see the dirt unite with the water and ammonia so quickly.

Mrs. M. wishes me to say that she thinks "Mr. Root must have taken pains to select a nice "Go-shen" carpet-sweeper when you sent ours, it is so nice and works so nicely. I don't like to tell her that I don't believe you even know that we ordered one of you, and then she won't know but you did her a most special favor. It was her valentine, but I call it her little wagon, and it is nice and handy to have in the house. A. B. MASON.

Auburndale, O., Mar. 19, 1887.

Why, friend M., you started out to tell us how to remove propolis, and have indirectly given us a valuable preparation for washing clothes, and the latter is probably of a hundred fold more moment than the former; but I watched anxiously to see some remark in regard to injury to the clothing. Mrs. Root used almost the same thing years ago, but finally abandoned it, because she and others thought it made the clothes wear out faster. Will your good wife please tell us her opinion in regard to this point? In any event, the recipe would be an excellent one for bee-keepers, I am sure. When I was in the jewelry business we used to have a large bottle of ammonia on a shelf over the sink, and the hands were so much in the

habit of using it when washing grease and other accumulations from their hands that it got to be an expensive item. It is an excellent thing to have in the house, at all events, and perhaps the friends remember we have had it put up in bottles on our 10-cent counter; in fact, it is there especially advertised for removing propolis, with the addition of a little soap. Now, are you sure the potash and borax make it any more effective?—Many thanks for Mrs. Mason's kind opinion of the carpet-sweepers, and of our establishment in general.

HOUSE-WARMING.

HONEY-BOARDS, AND MENDING TINWARE.

NOT one-half the people whom GLEANINGS reaches think they are able to have a furnace or a hard-coal base-burner, or keep up fires in stoves so as to warm distant bedrooms. I think it would be cheaper in the long run, as it would save taking colds, I am sure. The next best thing to having rooms warmed is soapstone foot-stoves, one or more of which will last for a lifetime. They take heat quickly and hold the heat a long time. We find it a great comfort to have one heated and laid in bed, where our shoulders come, and at night push it down to our feet. We find them much more comfortable than a jug of hot water, an iron, or a brick. The soapstone seems to hold the heat longer, and need not be heated scorching or sissing hot.

HOW TO MEND TINWARE.

Not long since I learned how to solder. It seems a simpler process than yours. I will give it to you and your readers. Procure a 25-cent bar of tinner's solder, and melt it up in an old dripping-pan, one end of which has two holes or more in it. When melted tip the pan so that the melted metal will run toward the holes. Let it run through them upon a long board or hard-wood floor; pull the pan slowly so as to make the solder come out in long slim bars. Cut up in lengths of six inches or so. Purchase 5 cents' worth of muriatic acid. Scrape the tin with an old jack-knife; if rusty, apply with cork a little of the acid; if not rusty, no acid is needed. Now light a candle or lamp. If a lamp is used, turn up the cap which is over the burner; leave off the chimney. Now hold the hole in the pan to be mended, over the flame, and with a bar of solder rub around the hole. The flame will melt enough solder to fill the hole in a moment, and the work is done. In this way I keep all my pans and cups mended. It is less trouble than to send to a tinner's, and less trouble than to be pulling in strings to fill the holes. Apply the solder to the side of the pan that is the least rusty. It is better to mend before the holes get too large, as it is more easily done. Practice first on the small holes, and then on the larger.

THE HONEY-BOARD WITH A BEE-SPACE ON TOP, AND A BEE-SPACE BELOW.

I am very much interested in the correspondence between Dr. Miller, Ernest, and yourself, in respect to the section-cases. I wish we could come upon something we were entirely suited with, and which needs no change. The honey-board with a bee-space below it and above the sections, I think, invaluable, as bees build bridges all over the tops of

the sections to raise up the cloths if cloths are laid over them. Last summer and summer before, as we had a great many division-boards cleated on one side, we used them on top of the surplus case, laying a thin quilt above to cover the sides, as the board was not wide enough. I mention this as there are a great many poor people who are keeping bees who feel they can not afford to buy all the new improvements until fully indorsed by others.

Roseville, Ill.

Mrs. L. C. AXTELL.

Thanks, Mrs. A. Your arrangement for mending tinware is much the same as the one we describe in the A B C book.

A CHEAP WAGON-BED.

HOW TO MAKE ONE FOR HAULING BEES, AND AT SMALL COST.

AS this is the time of year when some wish to move their bees to different locations, and get them ready for the season's work, I will give you a description of a cheap arrangement of my own that is the completest thing for its cost that I know of.

Now, a spring-wagon, made expressly for hauling bees, must be strong, and, of course, it will cost more than a great many will care to pay; so, instead of it, I made a bed 20 feet long and 45 inches wide, inside measurement. Under this are three heavy springs, so arranged that the bed can be put on any ordinary lumber wagon, and will carry all a team can draw. In the first place, I used two pine scantling, 2x8 inches, 20 feet long. These are the sides of the bed, and give it its firmness. Under these scantling, in front, is an oak plank, 1 foot wide and 49 inches long, placed crosswise, and securely bolted with 10-inch bolts to them. Under this plank the front spring is fastened with clips, and under the spring is a short false bolster, 2 feet long, clipped to it, and a king-bolt in the bolster, stationary. In putting the bed on the front axle, the bolster belonging to the wagon is taken off, and the false bolster, with its king-bolt, is used instead. Over the hind bolster, the same size of plank is used, and two springs are set crosswise, just inside the bolster-stakes. Two holes are made in the plank for the stakes to play through, as the bed springs up and down. The hind springs are set right on the bolster, and fastened to it with clips that can be put on or taken off at pleasure. For clips, $\frac{3}{4}$ -inch bolts are used with small yokes, 8 bolts to a spring; and for the clips around the hind bolster I put 4 bolts through small blocks of wood.

Now as to the springs: The front one is 6-leaved, 1 $\frac{3}{4}$ inches wide. The two hind ones are 5-leaved, and same width. They are 13 feet apart. The hind ones are five feet from one end of the bed, and front one two feet. A reach must be used with the wagon, of the right length, and it must be very firm.

As to the bottom of the bed, it is readily seen that the planks to which the springs are fastened will be a part of the support; and for the rest, place strips 2x2, and 49 inches long, crosswise, 2 feet apart, more or less, under the scantling, and fasten them with wood screws 6 or 7 inches long. We now have a frame for the bottom, and the bottom can be put on either movable or stationary. The rest of the bed can be finished according to any one's own inclinations. To summarize, we have the scantling for sides; planks and strips with boards on them

for bottom. It can be easily made; and, if made right, it will carry all the springs will bear, either 30 or 35 hives of bees, or a small picnic party, and it will cost about \$12.00 or \$15.00.

ROLAND SHERBURNE.

Lone Tree, Iowa, Apr. 6, 1887.

DOES THE QUEEN HAVE ANY THING TO DO WITH RULING THE COLONY?

PROF. COOK REPLIES TO FRIEND DADANT IN REGARD TO THE MATTER.

EDITOR GLEANINGS:—In the April *Apiculturist*, I write as follows: "Of course, we might speculate as one of our leading American bee-keepers has lately done in a leading bee-paper, in reference to the queen's compelling the workers to make drone comb; but in these days of scientific accuracy, speculation or mere theorizing goes for naught." A kind letter from our friend Dadant, who was the writer referred to (see article in current volume of GLEANINGS, p. 129), refers to this as ridicule, and asks me to explain why I see fit to condemn the theory. He rightly says, that theories have often done great good and have led to the greatest discoveries. He asks me to send my reasons for doubting his theory, to GLEANINGS.

First, I wish to disclaim all thought of ridicule. I look on Mr. Dadant and his son as among our ablest bee-keepers and best writers; and I never skip their articles when hurrying through our numerous bee-papers—so numerous that one has to pass some of them, or else pass much in all, if he does any thing else. Again, I consider Mr. Dadant as one of the broadest and most far-seeing of our American apiarists, and so one of our safest advisers. I feel to reverence such men who have grown venerable in a pursuit, and have left valuable finger-marks on every page. So hearty was my respect and admiration, that, when Mr. Langstroth asked me whom I would recommend to revise his great work, I at once suggested Chas. Dadant and son. I hardly need say, then, that I had no intent to ridicule.

I must say, however, that I was surprised at this article. The facts are certainly well established; but the reasoning and theory to account for them are not, to my mind, either sustained or probable. It was an idea in the olden time, that the queen exercised "sovereign authority." I commenced bee-keeping about twenty years ago, with this view. I soon became convinced that it was an error, and I have never seen any reason to return to the old views. It is true, as we all know, that, so long as the queen keeps the empty cells filled in the brood-nest, so long will only worker comb be built. Messrs. Dadant, Doolittle, and Hutchinson have given us excellent observations in this realm; and so long as they confine themselves to these facts, and the practical suggestions like that with which Mr. Dadant closes his excellent article, we are all profited; but the theorizing we had better leave, as did the great Charles Darwin, till we get such a wealth of fact and example that the theory may hardly be called mere hypothesis.

Mr. Dadant urges that the queen rules the workers in this matter. I have never seen a single indication that the queen rules the workers in any

respect, nor do I believe that she does. From my observation, it would be rather seem that *pro bono publico* is the motto of the hive. When honey is in excess, store-room is necessary; and it can be most rapidly fashioned if drone comb is built. I believe in this drone-comb building at such times, as also when drones are needed, as the colonies become crowded, and again when only storage is required, as in the absence of a queen; then all the bees cheer the work of building drone comb. Economy calls for this, and bees are excellent economists. When, on the other hand, bees are needed, and room for worker eggs imperative, then I believe all are in hearty accord, and are eager to see worker comb. It has seemed to me that Tennyson's lines state the law that governs in this bee-hive kingdom: "The individual withers, but the race is more and more." Let a bee become weighted with milk-weed pollen, stupid with age, or impotent from any cause, and how heartlessly the other bees drag it from the hive. I believe a queen is no exception.

The survival of the fittest, and the extermination of the weak, seems to be Nature's inexorable law. Even among men this law is not entirely absent. It seems to me that Christ introduced a grand improvement on this law; that is, kindness and love, even to the weak among us—even to our enemies. The bees have no higher ethics than the greatest good to the greatest number—no asylums, no almshouses there; yet so long as all are strong and able, just so long are all respectable in the bee-hive world, and each does its proper work with no let, hindrance, or compulsion. This is the impression which I have received from the closest observation I have been able to make.

WINTERING.

The spring may not be the time to write of wintering; yet it is the time when we are forming judgments that will control our future management. It seems to me that the question is solved; and that for localities in the latitude of Michigan, and, I think I may say, of Ohio and north, the cellar is the place. Give me a good cellar, and good honey or syrup in sufficient quantities, and I will warrant even rather small colonies. I speak after several years of absolute success. The cellar must be kept as near 45° F. as possible. Ours never falls below 38°, rarely below 43° F. This temperature may be cheaply and safely secured, either by sub-earth ventilation or by the presence of water. Probably artificial heat may be depended upon, but the above means I consider safest. The food must be good and abundant. Thirty pounds is none too much. It is very essential to pay close heed, after the bees are prepared for winter, that they be not robbed in the fall, and so starve during the winter. We lost one colony in this way a year ago, and two this winter. Every drop of honey was gone. Our apiary is so that we can not watch it continually, and so weak colonies, such as we form in autumn from nuclei, are, of course, subject to robbers. Our bees were in the cellar from November 12th to April 8th, and came out very strong. As in previous years, there is almost no brood. I prefer to have none. The colonies wintered in the new Heddon hives are wonderfully strong—I think because of the fact of a deep space under the hive. I believe that having the upper case full of honey, and the lower empty, would make a superb hive for cellar wintering. I wish all my hives were raised

one inch from the bottom-board in winter. I would cover closely above, but leave the entrance widely open. Bees wintered thus in a good cellar will give no trouble in spring, even though not packed. I know this because I have tried it. I wish to confine the bees on a few frames, and can succeed as well with single-walled hives as with chaff hives. I am not even sure that it is necessary to have packing above. A simple board may serve as well, but I am not sure of this. I shall try 25 colonies this spring.

Now, why I prefer the cellar is this: If the cellar is right, we are always safe, providing we look out for food. With chaff hives, we are not safe; at least, it so seems to me, even in the latitude of Central Ohio. Occasionally a long severe uninterrupted winter comes, and the bees are swept away, when those in the cellar are as safe as ever. Of course, the cellar *must* be right, but that can be secured with ease and certainty.

EFFECT OF BEE-STINGS.

I have noticed several references of late in GLEANINGS to bee-stings. This matter of bee-poison is surely one of much interest. In the many years which I have taught bee-keeping here, I have had often thirty or forty students a year. I always say to the class, that I do not think any one has properly completed the course who has not received at least one sting. Usually, each one passes satisfactorily in this respect. Of all these many students, only three have been seriously injured. In each of these cases, a severe fever was induced, attended with general swelling, even of parts distant from the wound, intolerable itching, and a sense of suffocation. I have always recommended cold water, either as a bath or pack, and it has always given quick relief; though the unpleasant symptoms of swelling and sore muscles would not disappear for two or three days. Very many are stung, and often there is considerable local swelling. For this we have tried all the remedies we have ever read of, from watch-key, clay, ice-water, to alkaline washes. We have not tried the new English remedy, but shall this season. Of all remedies, we have found ammonia the best.

The other day, in removing our bees from the cellar, we had a strange case. The student who aids me most with the bees has had, for several years, considerable experience in handling them. Like all who work with bees, he received the occasional stings, but suffered so slightly that he hardly noticed the matter, and cared scarcely any thing for it. Upon this occasion he was stung on the temples. In a few moments his skin all over the body was so red as to resemble a rash. Soon white blotches appeared all over his body. He felt faint, and seemed troubled for breath. I was somewhat alarmed. He went to his room at once, took a cold-water bath, and in two hours was relieved. He has been stung since, with no serious or peculiar effects. It would seem as if this was a case where the sting entered an artery or arteriole, and so the amount of virus injected into the blood was very great.

A. J. COOK.

Agricultural College, Mich., Apr. 12, 1887.

Friend Cook, in regard to the queen's ruling or leading the colony, permit me to call your attention to one fact laid down in the A B C book. In my early experiments I gave a neighbor a black queen that I did not want, to start an observatory hive. I

furnished the queen, and he furnished young bees by drumming them out of a colony of his own. In the course of two or three days the queen came out of the observatory hive, and all the bees followed her. She then came straight to our apiary and entered the hive from which I had removed her. Her own bees accepted her at once, but they stung to death the small swarm of young workers she brought with her. In that case they certainly followed the queen, or, at least, after they had all swarmed out together the queen led them to her old home.—It seems to me, friend Cook, you are just a little hasty in saying you consider the wintering problem solved; and I think, too, you do not give the chaff hive proper credit. We have wintered now from 100 to 200 colonies for quite a number of years, and the loss has been so light we almost feel, as you do, that there is no real need of losing bees at all, where they are properly put up for winter. Yes, we too winter weak colonies now without any loss at all, or, at least, we have during the past winter. I should be glad to think that we have the upper hand of this trouble which was, but a few years ago, such a grievous one; but it now seems to me we had better be slow in deciding that we are clear out of the woods.—I am a little surprised to see you decide that ammonia or any thing else has any effect in relieving the pain of a bee-sting. Have you tested first ammonia, and then nothing at all, a sufficient number of times to be sure it produces any effect whatever? Perhaps our agricultural colleges are the very places to have this matter settled; but if you set some of the boys at it and let them give it the same fair tests that they give artificial fertilizers, etc., I feel quite certain that the result will show the ammonia has no effect whatever on the bee-sting. The cold-water bath is, of course, a remedy for the symptoms you mention, but we have discussed this matter pretty thoroughly. The point is, Is there any thing under the sun that you can carry around in a bottle, that will give any relief whatever by applying it externally to the part stung?

LOW PRICES FOR HONEY.

CAN HONEY BE SOLD AT A REASONABLE COMPENSATION?

OF late a good deal has been said in the bee-journals about "overproduction, and the low price of honey." Although my experience has been limited, I have carefully studied the various points presented, and have been very much interested in all that I have read. The question has been handled by abler ones than I; yet many times things are brought out by the lesser lights that are obscured by the greater ones. I take the ground, that there can never be an overproduction of honey until the masses of the people of the country become consumers; but, how is this to be brought about? A small per cent of the people of this country are consumers of honey, and why? Because it is not brought within their reach. This can never be done by sending our honey to the great centers. We

must develop a home market. But some will say that there are so many going into the business, and who make a failure, they injure the business. This point is not well taken; for wherever bee-keeping has been attempted, and the people became accustomed to the use of honey, and bee-keeping failed, those who were the successful ones found a ready market for their honey whenever they put it within their reach. This was my experience when I located in Indiana. I was six miles from Ligonier. When I went there, most of the farmers kept a few bees and were accustomed to the free use of honey; but the various casualties destroyed nearly all the bees, and but few keep them now. I was successful with mine, and many of my best customers were farmers who formerly kept bees. I have sold as much as 100 lbs. to a single person. I created a home reputation and market for my honey, which I have never been able to supply; and the result has been that a good deal has been imported from a distance.

The last two seasons, I am aware that there are many producers who have a large amount of honey which they can not dispose of in their own immediate vicinity; but if they will take a load of honey, and canvass the country through, introduce it to the farmers, make arrangements to supply future demands, visit the towns around, introduce it to the people, and leave some on commission with one or more good men, they will invariably create a permanent market. It is true, this is accompanied with expense; but when once established it will not amount to as much as the delays, shrinkage, etc., met in sending to the large markets; and by withholding shipments to the large cities, and thus reducing their supply, better prices would be obtained there. I do not claim that the large producers can dispose of all their crop in this way, but they may greatly extend their markets and obtain better results.

Then, again, they must get their honey in the shape demanded by their markets, and not try to bend the markets to their style or notion. I think that Mrs. Chaddock has hit upon a sensible plan in GLEANINGS for 1886, page 887, in accommodating herself to the demands of her customers, and no doubt she will sell more honey in that way than if she insisted upon her style. I think with her, that there is too much style put on our honey for the general market. Let us put on all the style we can with our honey to tickle the fancy of the rich, and get as large a price as we can for it; but let us drop all the style we can for the general market, and try to get our honey as cheap as we can, to bring it within the reach of all.

That honey can be produced and sold with a reasonable compensation for money and labor invested, at a much lower figure than the present prices obtained, is fully demonstrated by many reports that have been published. A very great hindrance in accomplishing this end lies in the tendency of the people to abandon the cheap and simple hives and fixtures, and to experiment with and adopt many so-called improved hives, against which I have not a word to say, for they are all nice and convenient to handle, and to talk and write about; but any one will acknowledge that they are accompanied with more expense and labor, which I do not think is compensated for by the increased amount of production. What we want is a simple, inexpensive hive, with few parts, and all

appliances alike, so as to simplify the working of them as much as possible. All hives, frames, cases, and sections, necessary for the season's use, should be prepared ready for use before the season begins. A great reduction in the cost of production may be made by a proper and economical arrangement of the apiary, and its appliances to simplify the work to be done. A. D. STOCKING.
Almena, Mich.

THE NEW BOOK.

A REVIEW BY R. L. TAYLOR.

A NEW work on "The Production of Comb Honey," by W. Z. Hutchinson, has lately issued from the press; and, coming as it does from the pen of one who has had so much experience in apicultural matters as Mr. Hutchinson, and who has made this branch of the business a special study, it deserves more than a passing notice.

In make-up and typography the work is above criticism; and coming in covers made appropriately in close imitation of bright comb foundation makes it altogether tasteful and unique in appearance. In style it is concise, lucid, and to the point. One determined to find a point to criticise might complain at the redundancy of italics; and perhaps the discussion might, with advantage, have been given a wider range; however, taking the title literally, the author has discussed it from his standpoint in all its material bearings. From the time of building up the colonies, in preparation for the honey-harvest, to the removal of the honey from the hives, the ground is well covered.

If I have not misunderstood the author heretofore, he has made a marked advance toward the doctrine of spring protection of bees, and urges strong arguments in favor of thorough early packing to insure rapid breeding, and a strong force of bees at the opening of the honey-harvest. While some stand off and jeer at one who changes his position, and will not themselves move when increased light reveals their feet sinking in mire, I am always hopeful of getting some valuable information from one who shows a ready disposition to put aside previous error.

I accept Mr. Hutchinson's doctrine; but as to method, I prefer, as being more convenient, good division-boards and chaff or sawdust in the super. The author, as one of his chief points, discusses the methods of hiving swarms in hives without foundation in the brood-chamber, so as to secure worker brood-combs, and an increased amount of comb honey, and sets forth all the requirements so fully and clearly that no one who reads the work need fail of success in pursuing the same plan. With Mr. Hutchinson the only thing that stands in the way of complete success in securing the entire exclusion of drone comb from the brood-chamber are the old queens, and he objects to destroying them on account of the additional labor thereby imposed. I think, however, that a queen that is even two years old, and has passed the time in the current year when bees from her eggs can be profitably reared for honey-gathering, can be profitably replaced by a young queen; and I believe it may be done at that season of the year at very little cost.

In addition to the methods advised in the book, for clearing the bees from the cases in removing

honey from the hive, I would strongly advocate a good quill with which to brush off quickly the bees which cling to the bottom of the case as it is raised from the hive; and I would not overlook the utility of the tent with a hole in the top, in ridding the honey of the few bees remaining. The idea of using a tent for this purpose originated, I believe, with myself, and I consider it a valuable aid to one who has a good honey-house, and almost indispensable to one who has not.

For comb-guides in brood-frames, Mr. Hutchinson has found no good substitute for starters of foundation. I have tried a small three-cornered strip of pine tacked to the center of the lower side of the top-bar, the lower corner of the strip having been previously dipped in melted wax. From the limited experience I have had with it I am disposed to think it a good substitute.

The value of a book does not depend on the number of words it contains, high authority in bee-lore to the contrary notwithstanding; and it does not necessarily cost less labor to write a few words than to write many; but there is no froth nor surplusage in Mr. Hutchinson's work, and, judged by the true standard of substantial worth, it must be considered a great success, and no one of the class to whom it is dedicated can afford to ignore it.

Lapeer, Mich., Apr. 17, 1887.

R. L. TAYLOR.

SOME USES FOR HONEY.

HOW TO PRESERVE FRUIT WITH IT, ETC.

FOR jam, honey can be used instead of sugar with several kinds of fruit. For this purpose, clover honey is preferable to honeys of stronger flavor. With cherries, raspberries, and blackberries, honey gives as good satisfaction as sugar, as far as the flavor and the keeping qualities of the jams are concerned; peach-jam for which honey is used, ferments too readily; but honey is superior to sugar to make grape-jam. Grapes, canned alone or put up with sugar, will have crystals of tartaric acid forming among them, after being put away for a few months. But when grapes have been boiled down with honey the crystals do not form until a year or more after the jam is made, if they appear at all; and, further, for flavor and consistency, honey-jam is superior to sugar-sweetened jam.

SEEDLESS GRAPE-JAM.

Push the pulps out of the grape skins, and keep them in separate vessels; weigh them, and allow $\frac{3}{4}$ of a pound of honey to each pound of fruit. Put the pulps in a granite or a brass kettle, and allow them to boil until the seeds are well loosened, then strain through a sieve. Return the thick juice, thus obtained, to the kettle with the skins and honey, and allow the whole to boil from three to five hours. The riper the grapes are, the better the jam is.

In our little town, honey is considered a supreme remedy for colds and coughs. I find that there are as many ways of using it as there families who make use of it, though the favorite way among my neighbors is to apply it externally to the chest and throat, mixed with that old-fashioned panacea, goose-grease (whether cures effected by this remedy are "faith cures" or not, I can not say). Some use honey made into candy; others mix it with an equal proportion of butter, and swallow the mix-

ture before retiring; others, again, and I am one of the number, take it at night in a cupful of very hot water, or, better, elderberry-tea. I have read lately, that honey, well heated, and swallowed by spoonfuls at short intervals, is a sure cure for catarrh.

A great deal more might be said about the therapeutic value of honey, but I shall only add here, that it is unequaled by any other food to cure costiveness, especially in young children.

Only a few people understand to how many uses honey can be put on the table. I would advise the reader to try it as a sauce for baked apples, and for fresh blackberries instead of the regulation sugar and cream. It is not only more palatable, but, for those who live in the city, it is cheaper and more healthful.

I have received lately, from Mr. Chas. Dadant, the following recipe, which he translated from an Italian paper:

HONEY-CAKE.

Work together equal weights of honey and flour; add spice to taste, and the right proportion of baking-powder. Keep this dough in the cellar, and bake it as you need it, in a very slow oven. The cakes will be all the better if the dough has stood for a long time. Honey-cakes are very healthful and digestible, and their use is to be recommended to persons suffering from colds or sore throat.

Mr. Root, would it not be a good idea to induce all the housekeepers who read GLEANINGS, to send you items about some of the ways in which honey is used in their family?

MRS. E. J. BAXTER.

Nauvoo, Ill.

WAX FROM OLD COMBS.

A HANDY DEVICE AND HOW TO MAKE IT.

A CORRESPONDENT writes: "Do you know of any way to get nearly all of the wax out of old black comb? It is easy enough to get the wax from new combs or cappings, but quite another matter when old combs are to be rendered. If you know of a plan which will give the larger portion of wax from such combs, please give it to us through GLEANINGS." It would seem from the many articles given upon this subject, that no more should be necessary; but as in some essentials my plan of rendering wax is different from any I have seen described, I will give it. For bits of comb, cappings, etc., the Swiss wax-extractor works well; but for a lot of old comb, I know of no way equal to a caldron kettle, outdoors, filled two-thirds full of water, with a fire under it. With this, used as I shall soon describe, I think I can get fully 98 per cent of all the wax out of such comb, and rather more for each square foot of such old comb than I can from new. Instead of hanging the kettle over the fire, as is usually done, take a measure of your kettle on the outside, a little way up from the bottom, and go to your blacksmith and tell him you wish a piece of old heavy wagon-tire, welded so that the inside shall represent your measure. To this you want three or four (the latter preferable) square or round bars welded, at equal distances apart, for four legs. These should be of suitable size to give strength enough to support the weight of the kettle and contents, and long enough to raise the kettle from four to six inches from the ground at the lowest point.

After getting the kettle-holder home, place four flat stones just under the surface of the ground, at proper places, so that each leg will rest on one, having it at such a point as will be handy for all of the work to be done with such a kettle, such as heating water at butchering time, boiling potatoes for the hogs, etc.; for the smallest part of the work our iron friend will probably do is getting out the wax. After once having a kettle fixed in this way you will never want one hung on two stakes or a pole. Besides the kettle you will want a sack made of burlap or some other stout open cloth, which you are to fill with the old comb, stamping it in so as to get all in as compact a condition as possible. Next take a piece of four-inch soft-wood plank, or two pieces of two-inch plank, spiked together, and round one side of it, so it will fit the bottom of the kettle. To the flat side of this, fasten (by cleats or otherwise) a standard of a suitable length, which should be flattened at the top and have several holes bored in it. Then get a 3 x 4 scantling, or a suitable pole from the woods, and mortise through it near one end for the top of the standard, boring a hole through it in an opposite direction for a pin or bolt to pass through it and the standard. Besides this you will want a log-chain when we are ready. Fill the kettle two-thirds full of water and bring it to a boil, in doing which use only light fuel, so as not to have a hot fire except for the time being; because, if otherwise, it would be too warm for working around it, and might boil over. Now put in your sack of old comb, and with an old hoe press and squeeze the sack against the sides and bottom of the kettle, rolling it over each time as you press. The wax will rise with each pressing of the sack; and if the comb is not all in, you can soon raise the mouth of the sack out of the water. After it has cooled a little, untie, fill up again, till all is in. When all is in, and the sack has been worked over several times with the hoe, take the log-chain and fasten each end to the ears of the kettle, while the middle of the chain is to be fastened to the short end of the scantling. Now put the rounded-plank end of the standard on the sack and sink it to the bottom of the kettle, when the top end is to be inserted in the mortise in the scantling, and the pin, or bolt, put through the desired hole. Now go to the long end of the lever or scantling and see how you can make the wax rise by bearing down. When bearing down, sway the lever back and forth, and from side to side, so as to grind, as it were, every cocoon fine, and thus liberate the wax. When satisfied that the wax is all out, hang a weight on the lever and leave it. Don't go to dipping off the wax unless you have lots of time, and consider it *fun* so to do, for I assure you that the next morning you will find it all caked nicely on top of the water, when you can break it up and get it ready for a second melting, which all wax should have before going to market, or using for foundation. After taking off the wax, take out the sack, empty out the refuse, and rinse and dry, where it and the rest of the implements used are to be stored away for future use.

The description of this seems quite long; but I believe that in practice it is the shortest known process to get out a large lot of wax from old comb. If you think the iron kettle-holder too expensive, set the kettle on three stones. If stones are used they should be first subjected to heat, else

they may fly to pieces and upset the wax. By the above process I got out wax from old comb which, as early as ten years ago, A. I. Root pronounced in GLEANINGS as the best he had ever seen.

Borodino, N. Y., Apr., 1887. G. M. DOOLITTLE.

No doubt, friend D., your arrangement will answer an excellent purpose. I think, however, our friends will be obliged to have the iron legs to the kettle, or the lever would roll the whole thing over, and then there would be a pretty "kettle of fish," or rather, perhaps, a kettle full of beeswax, on the ground and in the fire, instead of in the kettle. I should be afraid, in any case, that it would hardly be safe to put *very much* pressure on your lever, unless the opposite end were more substantially supported than the attachment of it to the log-chain fastened to the kettle-ears. Reports at our different conventions seem to indicate that the only way of getting absolutely all the wax is to have some sort of press to apply to the wax while it is hot. Your arrangement is probably as practicable as any for the average bee-keeper.

BEES IN FLORIDA.

AN INTERESTING LETTER FROM G. W. WEBSTER.

IT has been two years or more since I made any report of our success with bees here in the land of flowers. Two years ago we extracted from 20 colonies about 1000 lbs., or 50 lbs. from each colony. A year ago we had only about 25 lbs. per colony. The season was a very cold one for Florida, and the bees dwindled to mere nuclei. A few died. It would seem to any one used to Northern winters, that Florida must be a nice place to winter bees; but there are serious troubles in wintering, even here. During the cool weather that we have here in winter there is not steady cold weather to keep bees in the hives. An occasional frosty night, and the absence of any honey-flow, checks brood-rearing, while every warm day the bees come out in search of honey or pollen, and many of them become chilled and never get back. Every experienced bee-keeper will understand how that would work.

A year ago last August I was taking care of 75 very large colonies of bees in chaff hives at Bonair, Iowa. After a few weeks of hot weather, with the mercury keeping pretty close to 100° in the shade, there came on several days of cold weather. There was plenty of buckwheat honey in the fields. The bees would go out, and, coming back loaded with honey, thousands of them fell and could be seen crawling over the ground. I have no doubt that I lost more bees every day for awhile than would make a large colony. Here in Florida we sometimes have such weather two or three days in a week for several weeks at a time. In our locality bees do well if they find enough honey to live on after the first of June. A nucleus on four or five frames will often starve out before the next season for honey commences, which will be in January, February, or March, according to the season. Strong colonies that have 25 or 30 lbs. of honey will generally come through in good condition.

In my opinion, the idea that bees get lazy in warm climates, and will not work, is all nonsense. They will work like beavers whenever there is any

thing for them to get. Leave honey or any kind of sweets around where they can get at it, and they will soon convince any one that they are not lazy. We have to keep the entrances to the hives contracted during a scarcity of honey, to keep them from robbing. We generally have to feed weak colonies in November or December. Our method of feeding is not patented.

For extracting we use long hives with a division-board. When we wish to feed we move the division-board and combs if necessary, so as to get the honey near to where the bees are clustered. We then take a bottle holding two or three pounds of thin honey, tie a piece of very thin cloth over the mouth, and place it in the hive, mouth down, just so that the honey can all run out, the other end of the bottle leaning against the side of the hive. The bees work away at the honey till it is all gone. Once a bottle was so placed that the honey could not all run out. The bees gnawed a hole through the cloth, got into the honey, and a lot of them were drowned. We knew better next time. There is not enough honey around to excite robbing, and it is very little trouble to feed them with our hives. The high, open, pine woods where most of the settlements in this part of Florida are, do not afford much honey at any time of the year. There are some scattering flowers during every month, but not of a kind to yield much honey. Where there are bearing orange-groves, bees gather some surplus honey during the latter part of winter, but I have seen no heavy yield of it.

Locations like ours, where there are plenty of lakes and ponds bordered with ilex, glaber (gall-berry), and palmetto, yield a good quality of light honey—the gall-berry about April, and palmetto in May, varying to the season. We think the gall-berry honey is best; but either is better than orange honey, which is darker, and nearly as strong as buckwheat honey. There are a few locations on the coast where the mangrove yields honey by the ton, but those locations are already pretty well monopolized, and honey is cheap. We have been wholesaling ours at 7 and 8 cents per pound.

To sum up, I will say to bee-keepers wishing to come to Florida, that high pine land is a total failure. Where there is plenty of palmetto and gall-berry, or rich hummock land near, it will be nip and nip to make a few colonies pay. A good mangrove location will be pretty good if one can stand mosquitoes, sandflies, and malaria. Of course, experienced bee-keepers will keep a few bees wherever they may be located, but I could not recommend any one to go to any place that I have heard of, away from the mangrove, with the idea of making bee-keeping a business.

It is the climate of Florida that brings people here. The winters generally have but few frosty nights, and sometimes none; and in the summer I have never seen the time that a thermometer, placed in the shade where there was no hot sand or any thing else to reflect the heat, would indicate more than 93°. People with plenty of money can enjoy themselves in this country, but I do not call it a very good place for a poor man. Yet there are many laboring men who are doing well. Fruit-raising is the principal business, especially raising oranges, in this part of the State. It would be interesting to write of the winter resorts and beautiful villages scattered over the State, of fine residences, owned, of course, by wealthy people; of

steamboating on the St. John's or sailing on the Halifax and Indian Rivers near the coast; of the fresh oysters and fish there; also millions of water-fowl at times; of fine strawberries from January to June, and of the many other fruits raised here; of fresh vegetables all winter, and many other items.

G. W. WEBSTER.

Lake Helen, Florida.

HOW BUSY FARMERS CAN RAISE STRAWBERRIES.

FRIEND TERRY SHOWS THE POSSIBILITIES RESULTING FROM HOME EMPLOYMENT.

FRRIEND ROOT:—About this time of year farmers are all advised by the horticultural and agricultural papers to set out a strawberry-bed. I probably heard 20,000 of them advised in this way at the institutes last winter. I heard them told, sometimes, that it was as easy to raise a bushel of berries as a bushel of potatoes. This talk is all very well for the men who sell the plants; but how do strawberries usually thrive under the management of the ordinary farmer? I think it safe to say, that, nine times out of ten, the berries picked do not much more than pay for the plants. The farmer is so busy, and has so many things to attend to, that the strawberries, like the garden, will not be likely to get the care that they need. It is quite a science to raise large crops of fine berries; one must read and study, and then attend to them at just the right time all through the season. This pays finely when one makes a business of it; but I have long had my doubts whether it would pay the ordinary farmer to fuss with a few, if he could buy fresh ones of a home grower. For some years we have bought about five bushels a year, as I thought I could raise potatoes and wheat, which were right in the line of my business, and for which I had all the tools and experience, and make the exchange for berries and be the gainer. I have tried raising them, or, rather, setting out the plants, with much care, and finally, in the rush of the season, neglecting them so that we hardly got our money back in inferior berries. I am ashamed to say it, but it is the truth; and I know I am not alone in my experience. Hence I do not believe it is much use to urge farmers to set out strawberry-plants in the usual way. But notwithstanding all this I have a fondness for seeing the berries growing, and I have been thinking it over all winter to see if there were not some way I could manage so the berries would be properly cared for. One day my girls were telling me that they wanted to do some work away from home, so as to get some money.

"Why," said I, "I will furnish you what you want; you earn it in taking care of me."

"Yes, I know you will," says one; "but I want to earn it myself, where it won't come out of your pocket."

It struck me this was a laudable ambition, and still I could not think of their going away to teach school, or any thing of that kind. All at once the strawberry-business occurred to me, and I asked them how they would like it to take charge of the whole matter and pocket the money.

Well, the result was I gave them the nicest, richest (mark that—not some poor corner) piece of land on the farm, and have engaged from a reliable

grower, the well-known Matthew Crawford, what plants they will want, leaving the choice of varieties to him. I have bought them books enough to study, so they can learn all that is possible in that way. We men will plow the ground when we do the rest of the lot, and harrow and roll it; and then when we are cultivating potatoes we will run through the berries; but the girls are to take the whole responsibility. I think it will do them good. It will teach them business. It will be healthful work. If berries could be raised in this way, on three or four farms in every town, I think it would be the best way for the farmers and for the individuals who own the patches. I do not hesitate to advise any farmer or other person to go at it in this way.

I asked Hon. H. C. Adams, of Madison, Wis., a noted raiser of berries, how much land my two girls, with their brother to help them, could take care of. He said he could tell better if he could see the girls. If they had lots of vim, an acre might not be too much; but still, he guessed half an acre would be safer. I thought best to cut down nearly a half on that, not on account of lack of vim, but because I have learned that concentrated farming is best, in the berry-patch as well as elsewhere. In a year or two they can spread out a little, if desirable.

It would be better, perhaps, to wait and give the result before advising other parents to go and do likewise; but time is too short. I take it there are hundreds of readers of GLEANINGS who could set up their children in a little business in just this way. It will cost only \$5.00 or \$6.00 for plants.

About the market: Make one among the people living right around you. There are ten bushels of strawberries sold in Hudson, where I live, now, where there was a quart when I first came on the farm, and the end is not yet by any means. Plenty of people would buy nice fresh berries, at a living price, if they were put right before them, who hardly know the taste of the fruit now.

Now, I want to stir up the children as well as the old folks a little by telling what has been done on a single quarter of an acre. I have seen the ground, and spent four days with the man who did it—the venerable J. M. Smith, of Green Bay, Wis. It was not convenient to measure all the land and keep track of the crop, so our friend marked off one-fourth of an acre and picked from it 3571 qts.—the largest crop, it is said, on record. Just think if you do not know of hundred-acre farms that do not do much better. At 10 cts. a quart this would be \$357. This is enormous, but not greatly above Mr. Smith's average. From $3\frac{1}{4}$ acres last year, although terribly dry, he sold \$215.24 worth of berries, besides taking plants to the value of \$300 from the same land in the spring. But this was not enough. After the berries were picked he plowed the patch and put in cabbage and celery—\$700 more! Just \$3215.24 from $3\frac{1}{4}$ acres of land! I took the figures right from his books, where each day's sales were put down. There isn't a question about their exact truth.

Now, friends, do not let the children go away from home to work just yet, so as to be earning something, when you have plenty of land that is not bringing you five dollars an acre; certainly not, if, from the fourth part of a single one, there is a chance for them to earn one hundred dollars or more. These figures I have given are from the

"upper story" — from the most skilled grower, perhaps, that we have; but in books and papers he tells every one how to do it. There are no secrets. Mr. Adams told me, that in a large way he had raised, on an average, not less than 160 bushels per acre, which brought \$400, and this for a long term of years. Just think of it! he sold last summer, to one restaurant in Madison, strawberries and cream to the amount of \$1000!

Now, if I stir up any father to give the children a chance, I shall be glad. Early in May will answer to set out the plants; but the sooner the better. The men you buy of will tell you how. Deal only with honest home growers, and take their advice as to varieties, etc.

T. B. TERRY.

Hudson, O., April, 1887.

There, friend Terry, you have written just exactly the article I wanted you to write. I have considered a good deal the thought you have made in many of your writings, that it is not only cheaper, but that a man enjoys himself better to have his specialty. I have had enough experience to understand the full truth of what you say about preparing yourself with proper tools, and studying up your subject thoroughly, and then doing the best that can be done with one specialty. In my life I have taken up a great many different kinds of business, and I have eventually made a success with a good many of these ventures, but it has always been a slow process. When I felt that I wanted to publish a bee-journal, I did not feel satisfied until I owned the type and the printing-press, so that I could have every thing just as I wanted it. The hands who were then working for me were not printers; but rather than leave my employ they consented to go to work and learn how, and I took the lead for a while, by learning to set type myself. In time we got out a pretty fair bee-journal, as some of the friends may remember; but *I tell you* it took days and nights of *hard, earnest work*, and while I was at the printing other things received but little attention.

Now, I know by experience that it is a task for a farmer to stop to plow even a little patch of ground for a garden. While we have been hauling manure this spring, several have wanted *just one load*, and then a few more particular friends wanted us to take our big team and stop just long enough to plow a garden; but I do not believe it would have paid us, even if we had been offered three times the usual price for such work, for the digression would have interfered with our regular plans. It would have thrown some others out of work; and may be the loss of just two such hours would have prevented us from getting in a crop at just the right time, and I can readily see that a progressive, successful farmer could by no means stop his work to fuss with a strawberry-patch. Before he could make any of the large results you mention, he must give the business a part of his *brains* as well as of his acres of ground. If he *loves* growing strawberries, however, and it is a pleasure and recreation to him, this would make another thing of it altogether. But I should expect, even then, if he succeeded *well* with his fourth-acre of strawberries, he would lose in his regular farmwork as *much, or more*, for it would take some of his brains

and energy from some of these things. The moral to the above would be, be careful about scattering your energies; concentrate them upon one kind of work, and make that work a success. Some one may suggest that we *hire* somebody to take the necessary care, pains, and responsibility to make the strawberries succeed, as well as regular farm crops. All very well and good, providing he *can* hire somebody who is competent to the task. My experience has been, that one who can make these big results on a small piece of ground prefers to work for himself. Suppose, however, it is *your own boys and girls* who feel an enthusiasm to enter the great business world, and try their skill independently of father and mother. This makes another thing of it entirely. You can afford to stop your team and lose a crop; you can afford to lose almost any thing rather than to lose an opportunity of teaching your children how to help themselves. It is, in my opinion, one of the grandest schools, for any young man or woman to go into some sort of business in just this way; and the results that have been attained from these industries, small fruits, bees, poultry, etc., have proved beyond question that it may be done. Let the *young folks* supply the needed brainwork; the exercise will develop their talents for business, and these outdoor industries strengthen the body as well as mind. Some writer has said, that, if you get a man or woman full of enthusiasm in these rural industries, they are almost proof against disease; and I believe that, a great many times, this thing alone will make sick people well. The girls may get sunburned, and perhaps tanned somewhat, by being outdoors so much; but, judging from my own experience, I think they will get repaid a hundred times by the happiness and enjoyment such work affords, especially if they succeed in making *some money*.

I hardly need suggest to *you*, friend Terry, how much depends on having some ground that is easy to work, and up to the highest notch of fertility. One of the bee-friends who lives in Barnesville, Ohio, paid us a visit recently, and I questioned him a good deal as to how they succeeded in raising the great big strawberries that bring such fancy prices. I have just received fifty of the *Jessie* strawberry-plants from your neighbor Matthew Crawford; and when I want to get happy I go out and look at these plants, and loosen the earth around them with my fingers. A bright, thrifty, rapid-growing strawberry-plant is one of the handsomest products of the floral kingdom, to me. And then the wonderful facility with which the runners may be made to produce new plants makes the business intensely interesting and fascinating. Perhaps some of the friends thought I had got over my strawberry craze, but I tell you I haven't. It is the plants and vegetables that we love that make the wonderful results; and where your children have a natural taste for handling and studying the habits of any plant or animal, they are the ones to make it do its best. May God bless your girls in their work, and may he bless the boys and girls, too, in all these homes scattered over our land!

HEADS OF GRAIN FROM DIFFERENT FIELDS.

THE SIMPLICITY SIMPLIFIED.

I HAVE 13 colonies of Italians in two story Simplicity hives, made by G. B. Lewis. I also gave E. A. Armstrong an order for 50 of his new reversible cases, made the size of my hive, holding 28 sections each. Now, I have changed the upper and lower stories into brood-chambers, making 26 hives out of 13 by dressing off the bevel edge and tacking on strips to bring them up again just $\frac{1}{2}$ bee-space above the brood frames, and then all is ready for the super. My covers are made like Dr. Miller's, except mine have a $\frac{1}{2}$ bee-space strip around the inside edge, corresponding with $\frac{1}{2}$ space on the super. I use Simplicity bottom-boards, making them long enough for alighting-boards, and all in one piece. I also have as many slatted honey-boards as hives. One side up they are break-joint; the other side is one continuous passage.

My hives and supers are painted three coats, pure white; the edges of honey-boards are jet black; all above the black line is mine, and all below belongs to the bees. I would say, also, that, while my supers are reversible, I am not compelled to reverse, nor do I expect to practice it, having already tried it sufficiently to convince me that it is nearly always impracticable. The cases would be better if made plain on three sides, and open only on one, costing less and accomplishing the same. The good things about the case are the T tins, the wood separators, wedges, and the simplicity of manipulation. I call my hives now the Simplicity simplified.

W. G. SECOR.

Greenfield, Ill., Apr. 6, 1887.

AN A B C SCHOLAR TELLS HOW TO EXTEMPORIZE A BUZZ-SAW OUT OF AN OLD FANNING-MILL.

I saw in GLEANINGS that Walter S. Pouder tells something about rigging up a buzz-saw. I will tell you how I made a hand-power saw. Take an old fanning-mill, having two good cog-wheels. Remove the hopper and put on a saw-table. Under it place a \$2.50 mandrel. On the wooden mandrel of the mill put a pulley. Belt the latter to the saw-mandrel pulley. Your saw-table is now complete. Take hold of the crank and turn as if you were cleaning wheat, and your buzz-saw will just hum. Your pulley ought to be 15 inches in diameter, with a five or six inch saw. It will run very easily, and you can rip up any thing where the saw will reach through. I have two of these saw-tables in use. One has a \$2.50 mandrel and a 5-inch saw, and the other one has a \$4.00 mandrel and 7-inch saw. With one hand I turn the mill and with the other hand I put the boards through. I prefer the table where the 5-inch saw is on. It runs much easier than the 7-inch saw, because the table where the 7-inch saw is run on must have a larger pulley, and so it will run harder. My 7-inch saw makes over 2000 revolutions a minute at ordinary turning, and I can rip up an inch board in a great hurry. I make all my bee-hives with these saws, and lots of other work besides. I think saws run in this way work pretty well for beginners.

Douglas, O., Mar. 28, 1887.

H. D. FRIEND.

WHY WERE THE BEES TORN TO PIECES? HUTCHINSON'S PLAN OF SWARMING.

Our bees have just had a fly, and three of them were engaged carrying out parts of bees. They were torn all to pieces, while the rest were bringing out bees not torn to pieces. The entrances are $\frac{3}{4}$ of an inch deep. We opened one of the hives, but could see nothing wrong. Can you tell me the cause of the bees being torn to pieces? We received 60 lbs. of comb honey per hive, spring count, almost all from white clover. There was no basswood bloom this past season, while in 1885 it was our only source. Bees are mostly kept in box hives here. The Hutchinson plan of hiving swarms works very well with us. In one instance they came out and clustered. On opening the hive the newly made combs were filled with eggs and pollen. We put in a frame with honey, and rehived them, and they were all right. I suppose, on account of no honey in the brood-nest, and the queen not getting any thing to eat, the bees were starved out.

Moundsville, W. Va., Dec. 11, 1886. C. C. SCHWOB.

Friend S., I can not tell what tore the bees to pieces, unless it was mice; but if your entrances were no wider than $\frac{3}{4}$ of an inch, I do not see how the mice could get in. I have seen a sort of worm among the dead bees, suck out the juices, and leave them a good deal in the shape you mention. Was not this the way it came about? I can not quite imagine how you or friend Hutchinson, or anybody else, could so arrange your hives that the honey went into the sections so completely as to starve the queen and bees. I never saw a comb of brood yet that did not have more or less honey and propolis scattered about in it somewhere.

WHAT COMPENSATION SHALL WE RECEIVE FOR TAKING CARE OF ANOTHER'S BEES?

I should like to inquire in regard to the customary wages of those having the care of bees. I expect to take charge of an apiary of 132 colonies in chaff hives. I shall have to put together hives, frames, sections, make fdn., extract honey—in fact, do every thing connected with the business. What I wish to know is, what would be reasonable wages for six months, commencing the first of April? Or if I should do the work for a share of the season's income in honey, what should be my share, the owner furnishing every thing? In either case I am to board myself.

In hiving swarms last season it happened two or three times that the queen was lost. I noticed that those swarms built out their fdn. and filled up with honey as fast or faster than those that had queens and reared brood. Of course, a swarm left in this condition would soon begin to grow weak. But could not this habit of bees be taken advantage of where honey is desired instead of increase? I have a plan in my mind which I will state. To make the matter plain we will suppose we have but two colonies, which we will call Nos. 1 and 2. The plan is to remove the queen from No. 1, and, as fast as they fill their combs with honey, take it from them with the extractor. To keep No. 1 up to full strength, give it capped brood from No. 2, using the extractor also on No. 2, in this way getting a large yield of honey without increase of colonies. If, on the other hand, comb honey be more desirable, use sections largely in the brood-chamber of No. 1. These thoughts may not be new to you, but in

my reading of bee-literature (which is quite limited) I have not come across any thing like it, and I should like to have your opinion. H. L. DOTY.

Salem Center, Ind., Jan. 28, 1887.

Friend D., I have sometimes thought that it was harder to decide just what a man who takes charge of bees is worth, than in almost any other occupation. For instance, a man who is sharp, keen, and skillful, might, with our 200 colonies, raise 1000 queens in a year, while another, equally honest, and working equally hard, might not raise more than one-fourth that amount. If the latter man is worth a dollar a day, the other would be worth four dollars, and I presume almost as great a difference would be found in the production of honey. It has been said, that no one knows the possibilities of a single colony of bees in a single season, and I should say that no one knows the possibilities of a single *man* in a single season. We do know to our sorrow, however, that there is an abundance of men who do not accomplish enough to pay for the wages they receive, and these are they who are going about from place to place, hunting for a job. Within the last hour I have employed a man to assist in our apiary, and I told him we would pay him whatever we found him to be worth. I have just unloaded a load of bees which we are to buy of him; and he drove off, saying, "Look the bees over when you get ready; and when I come around, allow me what you think I ought to have for them." It seems to me this is a very fair way to decide any of these difficult matters, especially where we have not seen the man work, and do not know what he can do. These bees we have not overhauled and examined yet, therefore we can not tell what they are worth to us. In the latter case, of course we want to deal with men whom we feel sure are disposed to be fair. Working on shares is always a complicated business; and about all that we can say is, arrange it in any way that you can agree upon.

THE "BOY BEE-KEEPER" REPORTS AGAIN.

It has been many days since the "boy bee-keeper" last appeared in your columns, and you and many of your readers may now scarcely recall him, so far have we drifted from our Georgia home at Hawkinsville, where our venerable sire still holds the fort with the gentle golden-banded Italians. We observe with especial interest the bees and flowers of every section we visit; and the result in this State has not been all we had cause to expect. We have wandered searchingly through woods and groves where the zephyrs came to us laden with the perfume of many flowers, and found a few small black and one yellow-banded bee to reward our pains. This only shows how that most delicious and wholesome of sweets is permitted to "waste its sweetness on the desert air," for no section of the country has given more abundant yield than some portions of Florida, where the industry has been properly introduced and scientifically pursued; but we find large areas of almost totally unoccupied territory. We shall make some practical tests in regard to this immediate field, and will probably, with your permission, give something of the result to your readers. CHAS. R. MITCHELL.

Ocala, Fla., Apr. 16, 1887.

EASING DOWN A SWARM.

I see some details of how some parties manage to get down swarms from high trees. I go up the tree and take a line stout enough to bear the swarm, throw it over the next limb above the swarm, then bring it down and tie to the limb holding the swarm. I then saw off the limb with the bees and let them down over the above-mentioned limb. If no limb is convenient, I let it down hand over hand. By having the line to bear on I can ease the limb down without any jar when sawing off. WM. HALL.

Romance, Wis.

Very good, friend H. Your plan for taking down a swarm will work all right if you have a limb above the one upon which the swarm was clustered, and if there are no limbs below to interfere in easing the swarm down. We have never yet succeeded in making a swarm cluster just where we desired it to. A perfect method of taking swarms down should be one that would be applicable to all conditions, and to any height.

MORE ABOUT THE COLONIAL EXHIBITION—A CORRECTION.

On page 252 Ernest seems to think the honey-exhibitions at the C. & I. E., made by the British Bee-Keepers' Association, and that made by the Ontario B. K. A. were one and the same. To think so would be quite a mistake. Our friends in Britain held their exhibition (if my memory serves me) from July 30 to August 4. Then it was removed. Ours was placed in position about the middle of September, remained open until the close of the exhibition, on the 10th of November, and was held in quite a different building—one erected expressly for our exhibits. It was occupied by our honey only. Yes, the colonial was lighted by electricity by night, and there were three arc lamps in our honey-building, and, as you may well imagine, the effect was very pretty. I am really sorry, Ernest, that you were not there to see it. Thanks for your kind remarks about our honey-shows. You are right about exhibitions helping sales. A lot of granulated honey in glass educates the people remarkably. The photographs shown by Mr. Abbott were of British honey. S. T. PETTIT.

Belmont, Ont., Can., April 6, 1887.

Thanks, friend P., for the correction. We did not know before that the exhibitions were held in two different buildings, and at two different times; in fact, in looking the matter up we did not notice but that they were one and the same exhibition, all held in the same building. We should have very much enjoyed taking a view of the honey-displays.

FURTHER EXPLANATION IN REGARD TO THE OAK-GROVE APIARY.

You don't know how much good it did me when I got GLEANINGS of March 1st. I opened it and found a picture of my apiary. I will now explain it some. The girl with the light dress is my sister. The little boy, as you call him (he is almost as big as I am) is my brother, and the other girl is my cousin from Nebraska. You ask why I put the hives on stilts. They are only 6 or 10 inches high. They look higher than they are. I put them that way because the frogs eat so many bees at night. The young bees never get chilled here when they fly out. The

peach-trees are quite full of peaches. Some of them are as large as a hulled walnut, and they will be ripe in May. Yes, there are orange-trees all around the apiary. Ours are not old enough to bear yet. There is a garden at the other side of the picket-fence, but the house comes first. I will explain that I have changed the name of my apiary to Oak-Grove Apiary, and my address to Barberville, instead of Volusia. Bees are doing pretty well, and we are having some swarms. When you come to Florida, don't forget to make us a visit.

Barberville, Fla., Mar. 21, 1887. O. E. HEACOCK.

DRONE-EATING CHICKENS ALSO WORKER-EATERS.

I think Mr. Cather will find, if he allows his chickens to catch drones, they will soon become as good worker-eaters, and, despising the sting, they will learn to handle them in as easy a manner as they do the poor helpless drone. I killed a chicken last fall that became an expert at the business. On opening the crop I did not find over three drones, but about ten times as many workers. My experience teaches me to keep the chickens out of the bee-yard. They dirty and scratch up the ground we have taken pains to lay out and level off; and on a fine winter morning (when it is too cold for the bees to come out) you may find them on the sunny side of a hive, jabbering off their chicken-talk, which must be very annoying to the inmates who are trying to pass away the cold winter in quiet. GRANT SCOFIELD.

Ridgway, N. Y., April 8, 1887.

THE FIRST DRONE.

Bees have been gathering pollen at times for two or three weeks, although we have had several quite severe freezes during the time. Yesterday they were very active, almost as thick around the hives as in summer. I thought at first I had a case of robbing on my hands, but some were busy carrying in pollen, and probably the others were young bees at play. I noticed one drone, the first I ever saw so early in the season. Am I to expect a swarm from that hive soon? It is a Langstroth chaff hive, containing a last year's first swarm. Or was I mistaken, and, instead of a drone, was it one of P. Benson's bees that he had fed up with his nursing bottle? S. C. GORDON.

Georgetown, O., Apr. 9, 1887.

The presence of drones may indicate that the bees are thinking of swarming; but as they often start a month or two before they swarm, it does not indicate any thing very positive.

CIDER, AND ITS EFFECT ON BEES IN WINTERING.

Mr. Dunn's remarks in last GLEANINGS, on the effects of cider on bees, induce me to relate my experience with it. In the fall of 1884 I had 27 colonies in winter quarters, packed on summer stands. We have a cider-mill within 30 rods of my apiary. The fall was warm, and they took large quantities of cider. About the 20th of November I found large quantities of brood in all the hives. That season, you will remember, was very productive of honey-dew, and the winter was very cold. When the February thaw came I had lost eight colonies, then six weeks cold, and I lost 16 more—24 out of 27. From the combs I extracted over 400 lbs of honey-dew.

In 1885 I put 28 colonies into winter quarters. They took a great deal of cider, and in the last part of November I found the hives well filled with brood. I lost one colony, starved, because, though

they had plenty of honey, it was at the other side of the hive.

In 1886 basswood blighted, and then drought came. A good deal of honey-dew was carried in, and but little honey from autumn flowers. The fall was warm, and the bees worked at the cider, taking a great deal. Brood-rearing had stopped in September, but began again; and on the 19th of November there was a good deal of brood. All my friends predicted heavy loss. The bees being short of stores, I fed about 300 lbs. of granulated sugar, in hard candy, laid on the frames. The work in the cider-mill interfered with feeding them early enough to make syrup. I packed 25 colonies with pine planer shavings; 18, including 3 so weak that I hardly expected to winter, I put into a clamp.

Jan. 21 there came a thaw, and I opened the clamp so as to give the bees flight. They spotted the snow no more than others wintered on natural stores without cider. I took them out on the 7th of April, having closed up the clamp again on the evening of January 21. All were in good condition but one; they having some packing one side, dug it out and so stopped up the entrance, and smothered. All on summer stands wintered well. I extracted all unsealed honey from about half the hives, in the fall; part of these were in the clamp, part out. I did not see that it made any difference.

Nelson, O., April, 1887.

S. J. BALDWIN.

HONEY-POISONING; HONEY SUPPOSED TO HAVE BEEN GATHERED FROM POISON HUCKLEBERRY.

I was raised in the central portion of Texas, and lived there 25 years, when I moved to this country two years ago, on account of poor health. I had liver disease, which baffled the skill of several physicians in Texas. I have improved so much since I came here that I feel as sound as ever; but when I undertake heavy work I soon become exhausted. I believe if I were to remain here it would finally cure me.

The country is very rough here—too much so to make any speed at farming. It is a heavily timbered country, consisting chiefly of oak and pine—some basswood on the river, three miles east, but little land under cultivation. Water is abundant. Nearly all the little branches between the mountains run eight months in the year. There are a good many wild bees in the woods, but yet very few people here have tried raising bees at home. They say they would rather hunt for the "wild" honey in the woods than to be bothered with bees at home. Several persons have been poisoned with honey in this part in the last two years. It is unknown what the cause is of the honey being poisonous. Some say it is strychnine which the bees got from bait put out for wolves. Some say it is poison huckleberry, but both seem improbable when we consider that there is not a tenth as much strychnine put on now as there was six or eight years ago, and the huckleberry is no more plentiful now than several years ago. As before stated, the first case of poison was two years ago. In a few hours after eating the honey, the persons poisoned begin to feel a tingling in the fingers, which finally extends over the whole body. In some cases it has caused partial paralysis, lasting several weeks. One case occurred ten or twelve miles from here, where a whole family of four persons were poisoned, and died within 24 hours. They lived in the low bottom country. At all of the places I have visited, where poisoned hon-

ey was taken, I have found plenty of poison huckleberry near by. If you can explain the cause of this poison, and give a preventive, it would be a blessing to many persons in this and perhaps other sections.

W. R. DAVIS.

Ultimathule, Ark., Feb. 15, 1887.

I have never heard of a poison huckleberry, friend D., but there has been considerable said about poison honey in years past. In a talk with Prof. Cook, a few days ago, while looking at specimens of honey in the museum of the Agricultural College, he expressed a belief that there is more or less mistake in regard to the whole matter. He has a sample bottle of poison honey in the museum; and, if I am correct, he has eaten it without any unpleasant results at all; and I am inclined to think that any thing that would kill a human being would kill the bees themselves. Sometimes one or more people in a family die after having eaten articles of food put up in tin cans; but we are assured from good authority that the cause of death lies somewhere else than in the canned goods; and I am rather inclined to believe that these deaths may have resulted from some other cause than from the honey that was eaten. We should, however, be glad of facts on the subject.

A NOVEL SWARMING-BOX.

I send you a sample of a swarming-box that I have used the last season. It works like a charm. There is no shaking of swarms to get them out of the box; all you have to do is to get your swarm to cluster in the box, the same as with any other box, then take the box down with the swarm in, and stand with your left hand to the box, with the pole at your right hand; walk up to the hive you wish to put the swarm in, lay it down with the open end to the entrance, or, rather, to the right, as you stand, then loose the hook and spread the box out and your swarm is ready to run in without any shaking or trouble. This is my plan and invention, and it is free to all who wish to use it. You can give the plan to your readers if you wish. The box is about 7 x 7 x 18 inches.

G. H. CLEMMER.

Arcanum, O., Mar. 29, 1887.

I will explain to our readers, that the box is much like our own, described in our price list and A B C book, only that it is hinged together with leather hinges, so that by unhooking one side it can be laid out flat in front of the hive. As bees sometimes act contrary, when shaken from a box, and take wing and go off, this might be an improvement; for after it is spread out on the ground in front of the hive, it has lost all appearance of a hive or cavity wherein they could cluster; and without any excitement or disturbance they proceed to march right into the hive proper, as offering the best accommodations after the hiving-box has been, so far as they can see, demolished.

WHY DID THE HONEY BECOME SOURED IN SO SHORT A TIME?

For the last two years our honey has not kept well. In the fall of 1885 we had but little honey. This was dark, with a disagreeable taste, and soon acquired an acid taste in addition. The honey-crop was large in the fall of 1886, and such delicious honey I never before tasted, so thick and clear. An old

and experienced bee-keeper took up the honey for me, and said in all his experience he had never before seen such honey; but inside of three weeks it had acquired the same disagreeable flavor, with the same acidity. Yesterday I met the gentleman who had taken up the honey for me, and he asked me what I had done with all "that delicious honey." I told him that it was not fit for use; and when I had explained he said he had never heard of such a thing in his life. He gave me your address, and asked me to write to you about it. My father-always kept bees, as did my husband's father, and I never heard of such a thing before. Our bees are Italians. We sow buckwheat for them after the fruit-blossoms and forest-tree blossoms are gone. We sow some buckwheat in June, and again later, so that the frost takes it while still in bloom. There are different wild flowers—heart's-ease and golden-rod being more plentiful than other varieties. If you can tell us what the trouble is, I shall be grateful.

LETITIA W. TRUESDELL.

Concordia, Cloud Co., Kan., Feb. 24, 1887.

I am sorry to say, my friend, that I have never known a case just like yours. I have seen honey, however, that seemed very thick and nice after it was thrown out of the extractor, and placed in a deep can, settle so the thickest and nicest honey was at the bottom, while that on top would become so thin as to sour. Is it possible that this is the trouble with yours? If so, go down to the bottom of your receptacle, and you will find it all right.

HONEY FROM ALSIKE.

Your estimate of the amount of honey 100 colonies would gather from 10 acres of alsike is certainly low enough. Now, it would be a difficult matter to get at it with any degree of exactness; but this I do know, that for the last two or three years our average of extracted honey from clover (there is very little of the ordinary white here) has been about 150 lbs. We have not 100 colonies, and have some 30 or 40 acres of alsike within 1½ miles of our apiary. In 1882 we ran 9 colonies for comb honey, and there was only about 10 acres of alsike near. It was a very poor season for honey, and nothing secreted honey during the clover season but alsike. We got about 250 lbs. from the 9.

ROBT. H. SHIPMAN.

Cannington, Ont., Can., Apr. 12, 1887.

TIMELY ARTICLES; WIDE FRAMES.

What a benefit can be derived from timely articles! For instance, Dr. C. C. Miller's article, March 15, p. 206—"Time of Taking Bees Out of the Cellar." My neighbors have taken their bees out since early in March, and we had considerable stormy weather during the last week in March. My bees are still in the cave, for which I am glad. Well, friend Root, I see that those who use supers have their troubles. I have tried supers, half stories, and wide frames in full stories; and if the golden rule is observed, to keep the colonies strong, I think the latter is as good as any; and as far as propolis is concerned, if there were some way of preventing the frame from sagging, so the sections would not drop from the top bar, the propolis would not be so bad.

Cleveland, Ia., Apr. 4, 1887.

E. B. MORGAN.

The trouble you speak of, friend M., was pointed out by Dr. Miller, and we had already made arrangements to make the wide frames tighter fitting for sections.

THE MESQUITE HONEY FROM TEXAS.

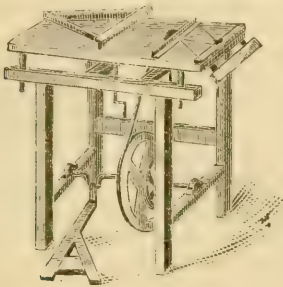
I send you by this mail a sample of mesquite honey, also some mesquite-blossoms. I extracted from three hives, April 14, 72 lbs. of honey, equal, every ounce of it, to the sample sent. Our honey-flow has come earlier than common, owing to the long-continued dry weather; and if the drought continues much longer I shall have honey enough, but no bread to eat with it. Try the sample, and tell me what you think of it. M. BROOKS.

Gonzales, Texas, April 18, 1887.

Friend B., the honey you send is of a nice amber color, though not very light, and the flavor is very good—much like some of our best fruit-blossom honey. The blossoms are very pretty and fragrant, even after so long a trip through the mails. If the mesquite yields honey usually in the quantities you mention, it deserves to have a place among our valuable honey-plants.

A HOME-MADE SAW-TABLE.

Inclosed you will find a picture of my sawing-machine, drawn by my boy, age 14. On this I have



made all of my own hives, crates, sections, and other supplies. Last year I made and sold over \$100.00 worth of apianian supplies. This machine I made myself. I bought the saws and mandrel of A. I. Root.

I think we can't praise you too much for the good you are doing through Our Homes and the Tobacco Column. To GLEANINGS and the A B C book I owe most of my success with bees.

New Vernon, Pa.

D. W. BURNETT.

FAVORABLE TO MRS. COTTON, AGAIN.

I was much pleased to read your article in GLEANINGS about Mrs. Cotton. I think she has been somewhat unjustly abused. I sent to her in the spring of 1885 for a swarm of Italians, and increased to six the same year, with 65 lbs. surplus, and last season to 20 and 350 lbs. surplus. I should have done better but for the drought. I think, with you, that her prices are high, but I think her hive is very good, especially for wintering—no small item, by the by. The only objection I have to it is, that it is not adapted to 1-lb. sections, though for my use I should prefer her glass boxes, but they are not so good for the general market.

Fulton, Mo., Jan. 11, 1887.

H. S. HUGGETT.

Friend H., I am very glad to get such a frank, honest testimony as the one you give. When anybody indorses Mrs. Cotton, to the extent of saying that she is exactly right in her plans and her prices, I begin to feel a little afraid of him. It is natural for humanity to take sides on almost all questions. A part will go to one extreme and a part to

the other extreme; but what the world needs is cool, unbiased testimony from those who will, with unprejudiced pen, give the good and the bad points of all these things as they come up.

REPORTS ENCOURAGING.

THE UPS AND DOWNS IN BEE-KEEPING; \$265 FROM 17 COLONIES, AND 5 SWARMS MORE THAN SPRING COUNT.

I STARTED in 1886 with 17 stands; increased to 30, and sold 8 at \$5.00 each, before comb-honey time. I extracted 250 lbs., and secured 1250 lbs. of comb honey in 1-lb. sections. I received 15 cts. per lb. for the extracted, quick sale, and from 12½ to 16 cts. for comb, mostly 15 cents, by the case. My honey is mostly fall honey. My sale of bees and honey amounts to \$265, and I have 5 swarms more than I started with. That will pay all my expenses.

I want to say a little about how my bees have wintered. I usually put my bees in a row, close together, and set them on prairie hay and pack hay over them. I have had the best results. The bees always come out good and strong; but this spring I have a good mind to write "blasted hopes." The winter was very open, the bees flew about every two weeks. They have dwindled down badly. I lost six entirely, and the others are rather weak; but I have cleaned them all out, and am going to try to pull them through. I have been in the bee-business about ten years, on a small scale, but never before have I had such bad luck wintering bees. I had begun to think that Nebraska was the place to winter bees safely. F. C. LEFEVER.

Juniata, Neb., Mar. 21, 1887.

Thanks, friend L., for your report. I hardly see how you could think of putting yourself into Blasted Hopes. The fact that you wintered unsuccessfully last winter does not necessarily indicate that you will have poor success in the future. Considering how you made your bees pay, as indicated in the head of your article, your report ought properly to come under the head of Reports Encouraging, ought it not?

FIFTY-SEVEN DOLLARS FROM TWO SWARMS IN ONE SEASON.

Last spring I started with two swarms. They cast three swarms each. I saved five, one got away. I sold 487 lbs. of honey for \$57.24. I have seven swarms yet, all lively and strong. I make my own hives. My first swarm came off the 26th of May. They did not swarm, but made 108 lbs. of honey. My caps hold 28 one-pound sections. My bottom frames are the same width as the 4¼ x 4¼ x 1 15-16 sections. I ordered my fixtures from you last year. We have some flowers in bloom here now on the ground and on trees. I will send you one of the popple-blossoms. The bees work very strong on them. I have a great many linn-trees around me, and early cherry-trees.

Kimball, Mich., Apr. 16, 1887.

A. M. FRENCH.

AN AVERAGE OF 2½ LBS. OF HONEY FOR THE LAST 5 YEARS.

I wintered 42 colonies in a damp cellar this winter, at a temperature of 38 to 40°, with splendid results. All came out in good shape. They con-

sumed but very little honey. I averaged, last season, 145 lbs. of honey per colony, and 90 per cent increase. The last 7 years I have averaged 135 lbs.; and, taking out the 2 first years, my average has been 215 lbs., mostly extracted, with over 100 per cent increase each year. You may hear from me this season. The most snow this winter fell March 26th and 27th—18 to 20 inches on a level in the timber. Some of my hives were completely covered up with snow. I had a time in getting the snow out of the apiary. The ground is covered with snow, but it is going off fast. The bees were gathering honey and pollen yesterday and to-day, and the ground is covered with snow. Have you bees that can beat that? WM. MALONE.

Newbern, Ia., Apr. 3, 1887.

NOT A COLONY LOST OUT OF 300 PUT INTO WINTER QUARTERS.

Our bees at this date were never in better condition. They have lots of brood, and are strong in bees. We have not lost any yet in about 300 colonies. We wintered outdoors in a clamp, and about 100 in a bee-house, all in fine shape.

SMITH & JACKSON.

Tilbury Center, Ont., Can., Mar. 4, 1887.

11 TO 25, AND 1300 LBS. OF HONEY.

I will give my report for 1886. I started last spring with 11 swarms, and increased to 25 by natural swarming, and took 1300 lbs. of comb honey. I use a double-walled hive. The inside wall is made of rye straw. JOHN SHORT.

Moline, Mich.

REPORTS DISCOURAGING.

ALMOST A CANDIDATE FOR BLASTED HOPES.

I SEE that your department of Reports Discouraging is not very well supplied, so I send you a report. Last fall I started in to winter with 106 colonies of bees; 57 were in chaff hives; 49 were in Simplicity. All had a plenty of winter stores. The chaff hives had good chaff cushions in the upper story; the Simplicity hives had chaff division-boards at the sides, and were well packed with chaff above. Out of the 106 colonies, 56 are dead; 6 are queenless, and over 40 are weak. Out of the 49 in the Simplicity hives, 41 are dead; and out of the 57 in chaff hives, 15 are dead. The chaff hives will probably keep me out of Blasted Hopes.

This has been the hardest winter on bees in this locality since the winter of 1880. A good many beekeepers have lost all of their bees, and not over 20 per cent of the bees in this locality will "weather the gale." Unless the weather changes pretty soon, I may be able to give you a report for Blasted Hopes. Bark-louse nectar gathered late in the fall was what did the business for us. I shall be glad when Prof. Cook comes around with his bark-louse destroyer. GEO. A. WRIGHT.

Glenwood, Susq. Co., Pa., Apr. 19, 1887.

Your report is a little discouraging, friend Wright; but if it does nothing more, it demonstrates the very great superiority of chaff-packed hives over single-walled Simplicity hives for wintering. I don't think we ought to run the risk of trying to winter our bees in Simplicity hives. If the winter should be favorable you are all right; but if

it should be like the one you have just passed through, then you could have well afforded to buy chaff hives outright for all the colonies, instead of sustaining the loss you did. The winter in your locality must have been somewhat more severe than in most other places. As near as we are able to gather from reports, last winter, as a rule, was very favorable for wintering bees.

THIRD ATTEMPT AND THIRD FAILURE AT BEE-KEEPING.

This is my third attempt at bee culture, and my third failure, so I conclude to quit. I will relate my last start. Last fall I bought two colonies. They were not rich in stores, so I fed during the fall to each about 26 lbs. of granulated sugar. I bought two chaff hives, and transferred the bees into them. This spring the bees were in splendid condition. I began to notice that one came out several times on warm days, so I thought they had no queen. The whole swarm finally left for parts unknown, but it does not stop here. I find another swarm had robbed this one; and when they had cleaned it out they went for the other swarm, and now I have two empty hives for sale. L. ROTTMAN.

Benton, Ohio, April 13, 1887.

The old saying of "three times and out" seems to be verified in your case, friend R., but I hope you will not be discouraged yet. Your bees wintered nicely, but you allowed them to be robbed. You now have a stock of experience that will help you to be more successful hereafter. In your closing sentence you corroborate just what I said in regard to robbing, in my reply to friend Miller. Where the robbers succeed in using up one colony they are just in trim to pounce on and conquer one right beside it.

UNFAVORABLE FOR FLORIDA.

This has been the worst season I have known here. The pleasant weather came early, and this past month has been very unpleasant. I have not heard of any bees swarming this year.

Sorrento, Fla., Apr. 3, 1887.

N. ADAMS.

NOTES AND QUERIES.

DO VANQUISHED BEES HELP THEIR CONQUERORS?

I HAVE lost two colonies of my bees out of twelve. One of them starved to death, the other one was overpowered and robbed by a stronger colony. The battle-ground at the entrance of the hive showed signs of a desperate struggle. When discovered, the queen was dead, and the remainder (if there were any) were busily engaged in helping their victors to carry out the remaining honey. Do vanquished bees, after losing their queen, always help their conquerors?

Laura, Ohio, April 25, 1887.

R. W. BRANDON.

[Vanquished bees do frequently turn in with their conquerors and help carry the stores to the new hive. As good authority, however, as friend Doolittle has expressed doubts of this. It was several years ago through GLEANINGS; but so many reports came in at once, corroborating the matter, that I believe most if not all accepted it as truth.]

WHAT AN A B C SCHOLAR DID.

My spring count was 56; fall count, 70. I secured 1500 lbs. of honey, all comb, in one and two

pound sections. How is that for York State for 1886, and all through studying A B C and GLEANINGS?

To keep Clark's smoker-tube from filling with soot, tack a leather strap to the wide end of the bellows, and hang it up small end downward when warm, and the soot will run into the small end and can be dug out with a nail or small knife-blade when cold.

WALTER SEAMAN.

DeKalb, N. Y.

[Friend S., your point is an excellent one, and I have no doubt you are right; but supporting the smoker by standing it with the nozzle downward would, I suppose, answer equally well.

A WINTER REPOSITORY NOT SUCCESSFUL.

We always buried our bees in sandy ground, and they wintered well. Last fall we built a house 5 feet in the ground, 2 feet out, warm and nice; thermometer lowest, 32°. The bees were uneasy all winter. We put in 44, and now we have 20 weak ones. The building is 6½ by 20.

E. BUSH.

Schodack Landing, N. Y., March 28, 1887.

HOW TO GET RID OF ROACHES.

I saw an inquiry in GLEANINGS for April, for a method of getting rid of roaches. We were overrun with them. They came in empty berry-boxes from Philadelphia. I used powdered borax. It is a sure exterminator. Blow it in all cracks and crevices, and scatter it around where they hide in the day time. Bees have wintered very nicely in New Jersey the last winter, so far as I hear.

Hartford, N. J., Apr. 11, 1887.

E. J. LLOYD.

THE FELTON SWARMING-BOX.

Yes, Mr. Root, you got a very correct engraving of my swarming-box, except the handle, which you have got turned the wrong way. It should be turned with the long end down. Bro. Kaler says I have misrepresented his box. I have not done so intentionally. The Kaler box, as used in this country is held up among the bees when they are flying. For my part I should much prefer my own box; but opinions differ, and I do not intend to quarrel with Mr. Kaler.

S. E. FELTON.

Setley, Pa., April 8, 1887.

SEPARATORS, WIDE FRAMES, AND CASES.

I do not want any more wide frames at any price. I have been very much interested in separators, cases, and wide frames. I do not use separators, and have abandoned wide frames. I find cases much better. I make them out of ½-story Simplicity hives, with a honey-board. I am making the board of slats, with strips of perforated zinc let in between. I think that is good, and the case is also the best out. I can wedge them up, and they are fast and good. I sell my honey to stores principally, at 14 and 15 cts.

GEO. A. MATHEWS.

Katonah, N. Y., Mar. 23, 1887.

BEEES VERSUS SUNFLOWERS.

Will bees injure sunflowers by feeding on the pollen? One of my neighbors states that his sunflowers were injured by the bees. He counted 20 at once on some of them, and attributes their failure to bees. I tell him it was the dry weather.

JONATHAN TOWNLEY.

Elizabeth, N. Y., Apr. 12, 1887.

[You can assure your neighbor, friend T., that the bees can by no manner of means injure the sunflowers. Their visits, on the contrary, must be a benefit to every plant that produces seed.]

MYSELF AND MY NEIGHBORS.

Therefore shall her plagues come in one day, death, and mourning, and famine; and she shall be utterly burned with fire: for strong is the Lord God who judgeth her.—REV. 18: 8.

A LITTLE before the first of April I received a telegram from Prof. Cook, telling me to come and visit his sugar-bush. Now, there is one thing I like about these trips away from home. It enables me to learn more about the neighbors outside of my own immediate vicinity. It enables me to get a glimpse of this great teeming outer world that is now round about us on every side. But, dear friends, if my object in traveling were to find out objectionable features in humanity it would be a sad and sorry task, and I am going to try to tell of the good things to be found away from home, as well as bad things. One of the things that pleased me greatly on the cars of the Lake Shore road was the addition of a wash-room—or not exactly a room, but a little place set apart where plenty of soap, clean water, looking-glass, combs, and brush, were kept, so that they could be used by any one, whether he were able to pay for the comforts of a sleeping car or not; and I tell you, these utensils were used. During a ride of two hours to Toledo, there was scarcely a minute that somebody was not busy refreshing himself by a good wash. May God bless the railroad companies for thinking of this excellent feature to make the traveling public happy! My brother-in-law, Mr. Holmes, says they will probably make all the new passenger cars that way. If cleanliness is next to godliness, it is a good sign.

By a blunder of the ticket-agent at Elyria, I had, as I often do, got on the wrong route; but after the mischief was done, I began asking myself if God had not something for me to do on this route that I should not have found on the other one. At Toledo I found a train ready to step on to, providing I took a sleeping-car. The cars were new and exceedingly comfortable, compared with the crowded Union Depot, and when I asked the price of a sleeper to Holly, Mich., I was greatly surprised to find it was only a dollar; and it was a nice, pleasant-looking man who said it, in vivid contrast with some of the porters one sometimes meets. I went to bed at once, and slept soundly until I was told that Holly was at hand, at half-past four in the morning. The same porter pointed me to an excellent hotel right close to the station. Here I was to sit for four hours and a half. As it would not pay to go to bed again, I took a seat by the stove and commenced to read Prof. Cook's book on maple-sugar making; for, to tell the truth, I had never read it entirely myself, even though I was the publisher. Perhaps I might say here, that the hardest work of my life now is to read the books, letters, etc., that I really ought to read. I find, however, it is far easier for me to read such a book when I am away from home than when here; because here I have constantly to pull my mind off from one subject to consider other responsibilities, and then push it

back by force of will to the book I am trying to read.

My first interruption was from the clerk. In stepping outdoors he slipped down and tore two buttons off from his ready-made new suit, and he kindly offered me a cigar if I would sew the buttons on for him. At first I thought of declining the job as well as the cigar; but it occurred to me that I had better sew the buttons on, as it would give me some opportunity to get acquainted. He could not sew them on himself, because they were behind his back. I guess I did him a pretty fair piece of work, even if it was several years since I sewed on a button.

The next interruption was from a hack-driver who came in to wait for a train. Then an employe at the depot across the way came in, and, I presume, to find somebody to talk with, while he kept an eye on things across the track. The first salutation of the two was loaded with oaths and blasphemy; then they commenced a friendly talk, and I believe it was the worst talk I ever listened to in all my life. I looked at the young men and began studying as to how to give them a mild reproof in such a way as to do them the most good. As they went on, however, their lives seemed to be so widely separated from my own I could not think of any way to start a conversation without having them feel that I was a sort of crank, or somebody who wanted an opportunity of airing his piety. Very likely Satan was getting into my own heart as well as theirs. They had no tastes, no interests, in common with my own. The depot man, in speaking about keeping awake nights when it is necessary in the discharge of his duties, said that the only way he could keep awake was by keeping just about so drunk. When in that condition he was never sleepy at all. I wonder if the railroad company know that men they hire to fill responsible places are in the habit of propping themselves up during the night time—propping themselves up to a sense of duty and their responsibility, if you choose, by an abundance of whisky. The bare thought of it staggered me, and the words I had planned to use I put away, and I do not know but it was Satan who whispered that indignation was the only proper feeling to have for such as they. Pretty soon they began to sprinkle in obscenity with their blasphemy; then they began to tell impure stories; and while I sat feeling myself unable to cope with the worst language that I had ever thought or dreamed of, they went on from bad to worse. I kept my eyes on my book, but they must have been sharp enough to notice that I was listening; and for fifteen minutes I had such a glimpse of the possibilities in the way of the utter depravity of the human heart that I hope I shall never have again. I did not know then that human beings could be so lost to every sense of decency; nor did it occur to me that it was possible for anything in human form to descend into such fearful depths of every thing repulsive and even horrible, as did these two young men.

In the story of Ivanhoe, written by Sir Walter Scott, Rebecca, the Jewess, while

watching the warfare through the grate of her dungeon, says: "O great God! hast thou given man thine own image that it should be thus cruelly defaced?" The same feeling came into my mind—did God, when he created human beings in his own likeness, contemplate the possibility that they might descend to where these two were standing? I gave it up. The people were stirring, and the clerk had been kindling a fire in the parlor. I went in there and sat down, feeling helpless and discouraged. You may ask why I did not appeal to the clerk, whose buttons I had sewed on. I thought of doing so, but he was brushing out the saloon part of his establishment, and getting ready for the busy throng that was beginning to come. He evidently seemed to think their talk was all right and proper. May God forgive me if I got uncharitable just then. I went into a clean comfortable room, and sat in an easy-chair; but I was not easy, and I was not happy. I could not hear the filthy words from the other room, but conscience seemed to say, and keep saying, they were going just the same as if I were not there. Perhaps others had gone in to help them. And then I meditated, also, that such talk was probably going on, or, at least talk, of something in that line, in other railroad stations and public houses throughout our land—possibly in some parts of our own town of Medina. May God grant, however, that it is nothing nearly as bad, for the influence of our churches and prayer-meetings in Medina has now gone into almost every nook and cranny of our place, and I do not believe there are any so utterly lost around my home as those I found here; and this, too, in the progressive State of Michigan—the State I have for many years felt was almost taking the lead in intelligence and progress, and, I had hoped, in godliness. No wonder we have our prisons full, and our infirmaries full, and our insane-asylums full, while we are sowing such seeds and getting ready for the crop. Our text tells us that the outcome of this kind of sinfulness is plagues and death and famine. In the end, purification shall come by burning with fire: for strong is the Lord God who judgeth.

A few weeks ago a sample copy of an illustrated weekly came to our office. A simple glance at the paper showed that its purpose was to encourage every thing that leads to depravity and filthiness. In the back of the paper were advertisements of the vilest books and pictures that ever disgraced the civilization of the world. The advertisers admitted that the books could not be sent by mail, but that they must go by express. As it is a dangerous business even then, they were obliged to charge five dollars for a single copy; but in several places different venders guaranteed that said book should not be lacking one whit in the filthiness and vileness of its pictures that the same book had between thirty and forty years ago when the strong arm of the law tried to stamp it out of existence. An editorial note on the first page of the paper defies Christian people in their efforts to repress their vile sheet, and asks subscribers

to inform them promptly if any postmaster or anybody else tries to hinder it from going through the mails. As a matter of course, this paper attacks the religion of Christ Jesus. Their hatred and bitterness toward every thing pertaining to God's word crops out in every column. Ministers and superintendents of Sunday-schools, deacons of churches, or anybody else, and others of like character who have been led away by Satan, are hunted up, pictured out, and held up before the world with jeers, in the effort to make it appear that all professing Christians are hypocrites; that there is no purity, either in man or woman; and the deduction would seem to be that there does not need to be. In scanning its pages I fell to wondering what these people would have if they could have every thing their own way. Suppose the people of the ———, their patrons, keepers of grog-shops, managers of houses of ill fame, and all that crew, were put on an island by themselves, and left without law or restraint, to have things just as they liked, where would be the end? Does not our text tell the story?—plagues shall come in one day; death, mourning, and famine shall follow on. If you want to see the prophecy verified, visit your infirmary or insane asylum.

After I came home I told some of my experience at Holly at the noon service. Our stenographer and proof-reader, who also plays the organ, told me, as the service closed, that it was in the neighboring town of Howell, Livingston Co., a few miles west of Holly, where they threatened good men if they attempted to interfere with the whisky-traffic there; and threats were not all. The following telegram, under date of March 17, tells the story: "The business portion of the city is a mass of black ruins."

In talking with Prof. Cook, he told me that, if I commenced a warfare against the ———, I would have to take the chances of having my property burned; and he said that, in their own State of Michigan, anonymous letters had been sent to men who dared to stand up to their convictions of duty, threatening them with the burning of their stores and residences if they went ahead, and the amount of losses had been such as to make even good and brave men tremble.

Now, my friends, you may be somewhat surprised, perhaps, when I say that, after thinking and praying over this terrible problem that lies before us, I have come to the conclusion that we are almost all of us more or less guilty. If we have not started stories that savored a little of impurity, we have perhaps stood by and smiled, by way of encouragement to the teller, even if we have not said anything. We have heard such talk as I have mentioned, and have, like my poor self, been so startled and shocked that we have not even opened our mouths in protest. May God forgive my lack of courage! Some of us who are church-members, and, may be, deacons, have been in the habit of repeating things of this kind (when no women were around), just because there was something funny

about it or it was a rich joke. May be we have done it when a child stood by, or, say, a young man in his teens, or may be a young married man. Perhaps he has repeated it because he has heard it from Mr. So and So; and then it may be (but I trust but rarely) these funny things are passed about among the other sex. May God help us all to set a better example! Some years ago a new convert, a young friend of mine, and a boy who was trying, as I verily believe, to be pure in word as well as action—told me that a man in my employ was continually telling impure stories and jokes. This man was a professing Christian. I went to him about it, and he with downcast face admitted that he had got into the habit. I talked to him pretty severely, and was afraid he would be offended; but although he felt hurt, he did not resent it. Since then he has at different times thanked me, and assured me that the results of my plain but kind reproof had brought him nearer to the throne of grace. These things had begun to get between him and his Savior. Soon after, he came to our young people's prayer-meeting, and took part. My friend, you do not need to scan the columns of such papers as I have mentioned, to be sure that this thing kills spirituality from the heart of any man or woman.

To be continued next issue in Our Homes.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

NO FOUL BROOD, AND EVERY COLONY WINTERED.

AS I had earnestly hoped, and so stated in the last issue, no colonies are lost by wintering up to date. I can hardly think this success is altogether attributable to a favorable winter, or to the chaff hive, though these two factors have a great deal to do in successful wintering. I am of the opinion, that the result in our own case was owing largely to the fact that we did the *very best we knew how*, knowing that the colonies were weak, and therefore needed special care if we expected to have any come out in the spring. Our apiarist, Mr. K., on account of the death of his father-in-law, was called away to take care of the farm last fall. This made it necessary for me to go into the apiary and give it more of my personal attention than formerly, at such spare hours as I could find from my work in the office. As it was impossible for me to do all the work as I wanted to have it done, I called upon one of our most trusty men to serve in the capacity of apiarist. We together, as our readers will remember, last year put the bees into winter quarters in the evening by lantern light and moonlight, and in the rain. Although Mr. S. had then had but little or no experience with bees, I knew that he would do just exactly as I told him. While I think there is a great deal of credit due to Mr. S. for the careful way in which he followed my directions, I think there is just a little credit due me for doing myself and telling him to do

just the right thing, in order that the bees might come out as they did. I make this broad statement, even at the very great risk of being called conceited (and I'd hate awfully to be called conceited), for just a little success. Is it not a thing to be a little "inflated" over, if you have wintered 200 colonies without the loss of a single one? To do it every season would be one of the "fine arts," and I don't aspire to that; but I do think, friends, that your success in wintering, whether it is a favorable season or not, is largely due to doing *the best you know how*.

LOTS OF BROOD, BUT NONE "FOUL."

We have had pretty fair weather for the last week or ten days. The maple-bloom is out, and the dandelions are showing their glad faces here and there over the lawns and through the apiary. As a consequence, brood-rearing has commenced in real earnest in all our colonies; and the downy young bees, so welcome in the spring, are dotting the combs as the latter are pulled out and examined to see whether they bear traces of foul brood. For three weeks now we have not had a sign nor a trace of foul brood, and we really hope that we shall have little or no more trouble from it. We think this result is largely owing to the fact that the two first colonies which had foul brood this spring were totally destroyed, so that not a single bee was allowed to escape and so get into other colonies. This might have been done by the starvation plan; and although we were entirely successful last summer in curing the colonies *themselves* which were diseased, we were not enabled to keep a few stray bees from entering and propagating the disease in neighboring hives. Our friend D. A. Jones says there is no need of letting these bees get loose and spread the disease, by the starvation plan. I presume not; but certain it is, that we did not succeed very well last season. Perhaps we were careless. At any rate, I think now if we had burned our first case of foul brood, even to the last bee, we should have had but little trouble.

THAT SMOKER SAWDUST FUEL.

A few days ago Mr. S. told me that he had just learned how to use that kind of sawdust fuel so as to make it last and give good smoke for four or five hours, without refilling the smoker. Now, dear friends, if any of you have tried to use this sawdust fuel as I described in this department last year, on page 550, and failed, please keep on trying if you want to save a good many hours' time.

OUR SWAMP APIARY.

As it would be hardly safe or wise to fill orders from our home apiary, although we are beginning to believe foul brood is cured, we thought best to locate another apiary. We have accordingly selected our peat swamp. Ten colonies purchased of an A B C scholar are already there, and we are expecting a couple more loads of bees from friends Rice and Shook, of Seville, some 10 miles from Medina. Orders for bees and queens will be filled from the "Swamp Apiary" and from Neighbor H.'s two apiaries. Our friends will not, therefore, need to fear foul brood if they purchase of us.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 1, 1887.

Blessed are the pure in heart, for they shall see God.—MAT. 5:8.

OUR subscription list is growing at a sure and steady pace. We have at date 7155 subscribers—a gain of 250 within the past month. This is 11 higher than we ever had before at any time. Many thanks.

ANOTHER CANADIAN BEE-JOURNAL.

THREE numbers of the *Canadian Honey-Producer*, by our old friends E. L. Gould & Co., Brantford, Ont., Can., are at hand. The journal is well gotten up, and the matter is valuable—certainly worth more than 40 cts., the price asked, to any one who has time for more reading. The only thing that troubles me is, will the people of Canada support another bee-journal? It seems sad to me to think of the number that have been started in the United States, only to live a few months or a few years. These journals all seem to be worth all the money asked for them; but the field for periodicals, especially class journals, is constantly overworked.

ECHINOPS SPHEROCEPHALUS.

A WRITER in the *British Bee Journal* of April 14th does not speak very favorably of the Chapman honey-plant. He says that it is grown in England as an ornamental shrub, is easily cultivated, and in any well-ordered garden it can be kept within bounds. It would seem that the plant in England is liable to spread and make trouble. The same writer says, further, "We do not recommend its extensive cultivation, for it is useless as a fodder-plant, and we doubt if it will answer to grow for honey alone." By the way, have any of the friends ever tried putting a paper sack over a common thistle to see if it would secrete nectar enough during the period in which it was covered by the sack (24 to 48 hours) to be almost dripping with the raw honey, as is the case with the Chapman honey-plant?

PRACTICAL TURKEY-RAISING.

THE above is the title of a very neat, pretty little work giving full and complete directions for raising turkeys. It is written by no other than the well-known writer on poultry, Fanny Field. We have not had time to review it thoroughly; but from turning over the leaves and reading here and there a paragraph, we feel sure that it is just about the thing for those who contemplate or who do make a business of raising this savory product for Thanksgiving dinners. The author has had great success in all departments of poultry-raising, and is well known as a practical writer among those who are interested in fowls. In turning over the first few pages, we find discussed, "Will it Pay?" "Tur-

key-Raising for Women," "How Much Profit for Heft?" "Capital to Begin With," and so on. The book can be obtained of the publisher, R. R. Mitchell, 69 Dearborn St., Chicago, Ill. The price is 25 cents.

GOVERNMENT PAMPHLETS ON CARP AND CARP-PONDS.

We have just received three different pamphlets, each one nearly the size of our book on carp culture, and to me they are intensely interesting. I wrote at once to the commissioner, Mr. S. F. Baird, asking if they were prepared to furnish them free to all applicants, and below is his reply.

C. S. Commission of Fish and Fisheries,
Washington, D. C., Apr. 25, 1887.

There will always be one or more kinds on hand for free distribution to whoever makes personal application therefor. You can direct people to write to the commission for all necessary information upon carp culture. S. F. BAIRD,
Commissioner.

DATING PRINTED MATTER.

NEVER publish a price list, circular, tract, or any thing else, without having the date with it. Many times it is of the utmost importance to know just when a document was sent out; and in regard to new inventions, a circular without the date of its publication amounts to just nothing at all in the way of evidence. In our notices of price lists and circulars received, of course we do not want to notice the same thing year after year; and as we have no means of knowing this except by looking at the date, I hope the friends will excuse us for refusing to notice a circular or catalogue unless there is some date on it to tell when it was printed. In this day of progress we can not afford to waste our time reading something that was printed long ago, and is away behind the times; besides, everybody has a right to know just when each new thought was first given to the world.

LONG LETTERS.

"THE hardest task now before me in life is to read the things I ought to read. I have been obliged to stop reading books entirely—even the new ones that have just come out on my favorite subjects. I glance them over and look at the pictures, and sometimes read a page or two here and there, but pretty soon I am compelled to lay it aside, oftentimes with a sigh, saying to myself, "This is all the time I dare give this one." Even the books on carp and carp-ponds, mentioned above, that are issued by the Government, have to be glanced over in the same way. I try to read most of the letters that come to me; but where there are several pages, all I can possibly do is to glance over it and hand it to somebody else, instructing them to give it the attention it ought to have as well as they can, and then I take up the next one. And I can not follow even this very long at a time or my reasoning powers would break down. I mention this, dear friends, to let you know that, if you write very long letters, the probability is I shall not be able to read them, and you see you thus defeat the object you had in view; namely, you get less of my attention than had you written more briefly. Articles for GLEANINGS, if very long, are handed over to Ernest.

A SURPLUS CASE FOR COVERING THE EXPOSED PARTS OF THE SECTIONS.

J. W. POWELL & SON, Mankato, Minn., sent us a surplus arrangement, the distinctive features of which are slats so arranged as to cover the tops and bottoms of the sections, leaving only the side edges and the inside of the sections exposed to the

bees. Mr. Shuck has invented a super somewhat similar to this, but, unlike Mr. Shuck's, Powell & Son have theirs so arranged that the sections may be quickly uncovered. They ask us if we should not prefer this to a T super. In answer, we would say that we do not. The slats in the Powell & Son's case, covering the top and bottom sections, come directly in contact with the sections. If we are correctly informed, it is just such interstices as are made by this kind of an arrangement that the bees fill with propolis. We should very much prefer the Moore crate or the T super, used in connection with the Heddon slatted honey-board. The T super arrangement leaves very few crevices, comparatively, for the bees to fill in with propolis. It seems desirable to have a bee-space above and a bee-space below the sections, *without any thing intervening.*

A BEE-BOOK IN THE SWEDISH LANGUAGE.

OUR friend HJ. Stalhammar, who has translated the Potato-Book into the Swedish language, has written a book on bees, the title of which is "A Practical and Theoretical Treatise on Bee-keeping." The book contains 182 pages, and is copiously illustrated. We are sorry to inform our readers that our "Swedish editor" is at present away on a journey, hence we can not give a very detailed description of the contents of the work; but as nearly as we can judge from the engravings, we should say that the author has collected his ideas from various sources; for instance, in the scientific part we notice some of the engravings which have appeared in Cook's "Manual of the Apiary" and Cheshire's "Bees and Bee-keeping." In the practical part we notice engravings of American, English, and German hives, and we have no doubt the author has given due credit in all cases. It is evident, also, from the engravings, that the writer has taken pains to select the cream of the literature on bees, and has carefully compiled them all into one work. It will be a valuable book for Swedish-speaking people. It is published at Goteborg, Sweden, but the price is not stated in our money.

WANTED, REPORTS DISCOURAGING.

SOMETIMES we are accused of printing only the bright side of bee-keeping. We have long had a department of "Reports Encouraging," together with occasional "Reports Discouraging;" and where the writers so desired it we inserted their letter under the head of "Blasted Hopes." To be fair with our readers, and give them the dark as well as the bright side of bee-keeping, we solicit reports of a discouraging nature; and if you have had "awful bad luck," and feel about ready to give up the business, write us a letter for Blasted Hopes. If, indeed, the candidates for the Reports Discouraging and Blasted Hopes departments are growing less for want of patronage; and if, indeed, the science of apiculture has so far progressed that we can now expect and hope for uniform success, then we can attribute this state of affairs largely to the bee-journals and books. To be sure, personal skill would be no small factor to take into consideration. In the heading we have said, "Wanted, Reports Discouraging." We are sure that none of us desire to see them; but if there is any considerable number who have had poor success within the last year, either in wintering or from drought, let us have the doleful story. Perhaps we can help you out of your trouble.

ENGLISH GUIDE-BOOK PAMPHLETS.

FROM Thomas Wm. Cowan, editor of the *British Bee Journal*, we have received Nos. 1 and 2 of a series of guide-book pamphlets. No. 1 is entitled, "Doubling and Storifying for Extracted and Comb Honey, and the Prevention of Swarming." No. 2 tells "How to Make an Extractor and Bellows Smoker." In the former, the author, Mr. Cowan, gives some plain practical directions on the production of honey. The term "doubling and storifying," as used by our English friends, is, we presume, about synonymous with our word "tiering-up." He recommends only simple and inexpensive hives—those that will "tier up." He very sensibly discourages the use of frames with side supports for spacing frames for fixed distances. We notice in the advertisements of the *British Bee Journal* that a good many are advertising this kind of frame. In reference to this point, Mr. Cowan says, "Our frames have neither distance-guides, pins, nor projecting shoulders; we can bring them closer together, or put them further apart, as we wish, without any difficulty. It is many years since we discarded all these encumbrances, and we have never had reason to regret it." Mr. Cowan also emphasizes the importance of having only one size of hive and one size of frame. His method for storifying, or, as we term it, tiering up, is such as is practiced by our most successful bee-keepers here in America. This little work, "Doubling and Storifying," may be had for the modest sum of 3 pence, or, in our money, postage included, probably 10 cts. "How to Make an Extractor and Bellows Smoker" may be had for 6 pence. Both of the above are published by J. Huckel, Kings Langley, Herts, England, of whom they can be obtained.

HOW TO KEEP DIFFERENT VARIETIES OF POULTRY PURE WITHOUT GOING TO THE EXPENSE OF FENCES.

MAY be it won't suit your case, but I will tell you how it answers here. Friend John C. Capehart, of St. Albans, V. Va., sent me a beautiful trio of Silver-spangled Hamburgs. They are not only everlasting layers, but they are also everlasting flyers. One day I happened to look up and was astonished to see a bird of beautiful plumage hovering over the factory. She sailed down at my feet, and proved to be one of the Hamburg pullets. So you see that making a fence for these is out of the question. I tried a sitting of eggs, hoping they would be mostly pure; but the chickens had feathers on their toes, and bore other unmistakable evidences of relationship to our ten-dollar Brahma rooster. If I fenced them up, the fence must be covered with netting at the top as well as the sides; but I could not bear the thought of cooping up the graceful little fellows, so I carried them down to the carp-pond and kept them shut up three or four days. They are now roosting in a beech-tree nights, and the pullets are laying beautiful white eggs in a brush-heap under said tree day times. What food they need, besides what they gather, I place in a box after dark, under the beech-tree. Thus you see I have been working on the Stoddard egg-farm plan. They never follow me up to the house or barn, because they do not know that I have any thing to do with the supply of food. The carp-pond is so far away from the barn that the other fowls do not often get down there. As to how many different breeds could be kept in this way on ten acres, without mixing, is the problem.

SPECIAL NOTICES.

MAPLE SYRUP.

THAT nice maple is not all gone yet. Remember, we mail samples of the two kinds to any one on application.

SPECIAL NUMBERS OF GLEANINGS WANTED.

We will pay 10 cents each for a limited number of April 15th GLEANINGS for 1884. Be sure not to send any other number. Remember the date.

SUNFLOWER-SEED FOR FEEDING POULTRY.

We can furnish a nice article of plump seed, but not quite as large as the Mammoth, for 7 cts. per lb.; 10 lbs. for 60 cts.; 100 lbs. for \$5.00. There are about 40 lbs. in a bushel.

FIVE-CENT ROUND-POINTED SCISSORS.

We are unable to get any more of the five-cent round-pointed scissors, made of steel wire. We have some very nice ones, however, the same as we formerly had, made of metal. They are much handsomer, if not quite as strong as the ones made of steel wire.

PLANTS OF THE FIGWORT, OR SIMPSON HONEY-PLANT.

THOSE who have failed to get good plants by sowing the seed can be furnished with good strong roots which can hardly fail to grow and give blossoms this year. Price for one root, 5 cts.; 10, 25 cts.; 100, \$1.25; 1000, \$10.00. If wanted by mail, add 2 cts. each extra for postage and packing.

RASPBERRY-PLANTS.

We can furnish honey-bearing raspberries, if orders are sent in at once, before cultivating. We can furnish roots of either Cuthbert or Gregg raspberry-plants, at the same figures given above for the figwort. The Cuthbert and Gregg we consider the leading sorts for fruit, and the Cuthbert is especially the bee-plant.

THE SMITH IMPROVED FORCE-PUMP ADVANCED AGAIN.

We have just received a shipment of the Smith improved force-pump and sprinkler, illustrated on another page in this number. The improvements are all in the plunger. The lower end, instead of being wound with cotton tow, has a band of leather, which will work much more easily, and last much longer. The upper end of the handle has a round knob instead of the old handle, and is painted red. The plunger is turned the same size from top to bottom, and runs through a wooden plug that fits into the top end of the barrel. All these improvements have cost the manufacturer so much that he is obliged to advance his price again. We can furnish you them at his wholesale price to jobbers, which is as follows: Single pumps, \$1.00 each; three for \$2.75; crate of one dozen, \$10.00; two dozen, \$18.00; four dozen, \$33.00; eight dozen, \$60.00; twelve dozen, \$84.00. They are all put up in crates of one and two dozen each. The plungers come inserted in the pumps, instead of being in a separate crate as heretofore.

THE 32D THOUSAND OF THE A B C BOOK JUST OUT.

The last 5000 of the A B C book for 1886 was sold in just about a year's time, and in order to get the edition for 1887 out just as the former edition was exhausted, we were obliged to run our press night and day. We are happy to say to our readers that the present edition has received a more thorough revision than any previous one. Not only has a great deal of new matter been added, but many new and fine engravings have been inserted in the context. Almost every subject in the whole work has received more or less changes to suit the advancement of the times. Some of the subjects have been entirely re-written, so changed is the progress of apiculture. The work is now virtually as near up to the times as if it had been entirely written in the year 1887. As you are perhaps aware, the whole work is kept in standing type, so that a single letter, word, paragraph, or whole pages, can be stricken out or modified as the true spirit of advancement dictates. The price of the A B C will remain the same as formerly.

FULL COLONIES OF ITALIAN BEES

With queen, in A. I. Root's Simplicity hive, 9 metal-cornered wired frames, combs drawn from full sheets of foundation, \$5.00. I make this offer to reduce my stock of bees in a short space of time, as other business demands my attention. 89d
E. D. GILLET, Brighton, Lorain Co., O.

FOR PRICES OF

Berry-Baskets and Crates, Send to

MELLINGER, HARROLD & GROVE, Columbiana, O.

SEND FOR SAMPLE BASKET FREE.

We also sell baskets in flat.

7-10db

LOOK HERE!

20 CHOICE GREENHOUSE AND BEDDING PLANTS for only \$1.00 by express, or \$1.10 by mail. Eggs for hatching, from leading varieties of land and water fowls; also **BEES** and **QUEENS** very cheap. Write for prices to

6-9db

E. M. HIVELEY, Youngstown, Ohio.

IF YOU ARE WANTING

ITALIAN, HYBRID, or GERMAN BROWN BEES,

Simplicity Hives, or Section Boxes,

Send 2-Cent Stamp for Circular to

6tfdb

Box 653.

THOMAS CEDYE,
La Salle, La Salle Co., Ill.

700 BEES
LBS.

I will sell these at \$1.25 per lb. Also untested Italian queens, bred from imported mother, to go with bees, at \$1.25 each. Cash must accompany orders. Ref., 1st Nat. Bank here.
E. Burke, Vincennes, Ind.

7-10db

1000 FIRST-CLASS SMOKERS, CHEAP.
E. T. LEWIS & CO., Toledo, O.

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 30 cts.; \$1.00 per 100; or \$9.00 per 1000; 10,000, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls—1 ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

Inches wide,	Inch mesh,	No. of Wire.
6	2	18 10.
12	2	19 91, 85, 60, 50, 41, 40, 25, 25, 10.
12	2	18 70, 17, 15, 13, 13, 1 1/2 mesh, No. 17 wire, 24.
18	2	19 150, 150 13.
18	2	18 140, 81, 1 1/2-inch mesh, No. 19 wire, 166 sq. ft.
24	1 1/2	20 120, 120.
24	1 1/2	19 230, 64, 25, No. 18, 200, 1 1/2-inch mesh, 62.
24	2	19 200, 170, 140, 130, 100, 100, 100, 90, 88, 82, 64, 64, 56, 50, 50, 40, 32.
24	2	18 226, 224, 66, 58, 58, 56.
30	1 1/2	19 41, 32, No. 18 wire, 90, 40, 30.
30	1 1/2	19 75, 55, 17, No. 18, 42.
30	2	19 250, 237, 167, 125, 125, 123, 45, 40.
30	2	18 150, 1 1/2 mesh, 42.
36	1 1/2	19 234, 14, 114, 75, No. 20 wire, 348, 312.
36	1 1/2	18 180, 108, 91, 39.
36	1 1/2	19 27, No. 18 wire, 90.
36	2	19 345, 330, 270, 255, 246, 240, 204, 204, 198, 195, 132, 132, 75, 75, 60, 60, 57, 53.
36	2	18 360, 291, 114, 72, 51, 36.
42	2	19 350, No. 18 wire, 203, 63, No. 18, 1 1/2 mesh, 189.
48	1 1/2	20 364, 40.
48	2	19 296, 268, 200, 100, 96, 36.
48	2	18 172, 60.
54	2	19 450, No. 18 wire, 288.
60	2	19 586, 490, 445, 385, 330, 330, 325, 285, 280, 240, 225, 230, 210, 180, 165, 160, 140, 130, 80, 50.
60	2	18 410, 335, 320, No. 17 wire, 195.
72	1 1/2	19 438, 312, No. 18 wire, 228.
72	2	19 750, 730, 690, 672, 636, 618, 558, 510, 438, 438, 420, 270, 252, 252, 222, 192, 168, 168, 162, 162, 156, 156, 156, 120, 66, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season.

A. I. ROOT, MEDINA, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
 See advertisement in another column. 8tfdb

SYRIAN ITALIAN AND ALBINO

BEES AND QUEENS

One lb. bees, 1 frame of brood, and untested queen, \$2.25; 1 untested queen, 75 cts.; 2 untested queens, \$1.25; tested, \$1.50; hybrid queen, 25 cents; bees by the pound, 50 and 75 cts.; frames of brood same. Write for any thing not mentioned.

9-10-11-12d **N. E. COTTRELL, Fayette, O.**

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address

6tfdb **HENRY ALLEY, Wenham, Mass.**

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**
 CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 11tfdb

HARRINGTON'S AD.

I have a fine lot of tested queens; will sell them in the month of May at July prices:

SELECT TESTED	\$3.00
TESTED	2.00
UNTESTED, After May 20	1.00

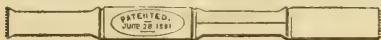
Holy Land and Albinos same price. If you wish something fine give me a call. I never had a case of foul brood. My two apiaries are located $3\frac{1}{2}$ north and 2 miles south respectively in a bee-line from the Home of the Honey-Bees. tfdb

H. B. HARRINGTON, Medina, Ohio.

Boss One-Piece Section,

MANUFACTURED BY

J. FORNCROOK & CO., WATERTOWN, WIS.



Patented June 28, 1881.

We will furnish you sections as cheap as the cheapest. Write for price list.

Watertown, Wis., May 1, 1887. 9d

QUEENS.

Untested Italians from choice mother, from May 15, \$1.00 each.

DAVID STRANG,

Lincoln, Lincoln Co., Tenn. 9tfdb

BEE-KEEPERS' WHEELBARROWS.

Wheelbarrows, \$4.00; queens, untested, \$1.00; tested, \$2.00. Bees per pound, \$1.00, and lower as the season advances. Send for price list. 9tfdb

W. S. DORMAN, Mechanicsville, Iowa.

LOOK HERE! We have 25,000 V-groove sections left of our 100,000 adv. in last month's GLEANINGS. To close them out we will take \$2.50 per M. For sample, address 9d

J. B. MURRAY, Ada, Ohio.

ITALIAN QUEENS

Raised from one of A. I. Root's select tested queens. Tested queens, \$1.00; untested, 60 cts. 9d

C. C. KIRKMAN, Coxville, Pitt Co., N. C.

GIVEN AWAY.

We will send free by mail one of our latest improved drone and queen traps to each yearly subscriber for the **AMERICAN APICULTURIST**. Price \$1.00 per annum. Sample copies free. Send the \$1.00 in common letter at our risk.

Address **AMERICAN APICULTURIST,** 7tfdb Wenham, Mass.

MAKE YOUR

PRICE LIST STICK.

Common circulars are often thrown away with only a passing thought, and soon forgotten. But our beautiful, instructive, amusing

CHROMO CARD

Will stick. When the articles upon it are explained, the story will be repeated many times. Bees, flowers, children, implements, brilliantly

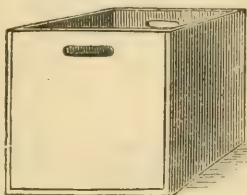
PRINTED IN EIGHT COLORS.

Give it to a customer for honey or supplies, and you will not be forgotten.

Sample package, 10 cts. One sample and price list of cards, queens, foundation, and other things useful, sent free. Address **J. H. MARTIN,** 9-sdb. HARTFORD, Wash Co., N. Y.

POTATO BOXES

(TERRY'S).



These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

A. I. ROOT, Medina, O.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

RUBBER STAMPS

DATING, ADDRESSING, BUSINESS, LETTER HEADS, ETC.



No. 1.



No. 3.



No. 2.

self and all who do business with you a "world of trouble." I know, you see.

We have those suitable for druggists, grocery-men, hardware dealers, dentists, etc. Send for circular.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange for extracted white clover or basswood honey, or bees, a new foot-power saw. Write for particulars.
9d W. S. WRIGHT, Battle Creek, Mich.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section plants, or foundation. Circulars free.
4tfdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange bees by the pound or full colonies, queens, comb fdn., eggs for hatching from L. Brabmas and S. S. Hamburgs, for sections, Jersey cow, American Merino sheep, or offers.
6-7-8-9d J. P. STERRITT, Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange Wyandotte eggs, pure ground bones and shells, and Gregg raspberries, for comb foundation.
7-8-9d A. A. FRADENBURG, Port Washington, O.

WANTED.—To exchange Barnes foot-power saws and bees, for steam-engine, honey, or beeswax.
7-12db C. W. & A. H. K. BLOOD, So. Quincy, Mass.

WANTED.—To exchange complete photograph outfit for Army newspaper press or job office.
8-9d WALTER A. KALER, Andersonville, Ind.

WANTED.—To exchange bees or queens for registered Jersey heifer.
8tfdb ISRAEL GOOD, Sparta, Tenn.

WANTED.—An active young man to assist in apiary. Give age, and wages wanted, and address
W. D. WRIGHT, Knowersville, N. Y. 9d

WANTED.—To exchange for bees, a Barnes combined circular and jig saw, including 3 saws, 2 mandrels, gauges, jig-saw attachment, etc., in good condition.
CHAS. F. RAYMOND, 9d
739 Republic St., Cleveland, Ohio.

WANTED.—To exchange, hives, sections, frames, crates, etc. (either flat or nailed), for white paint, box nails, foundation, belting, or any thing I can use. Send for free catalogue.
9-11-13d C. W. COSTELLO, Waterboro, Me.

WANTED.—To exchange eggs from Bronze Turkeys, Pekin Ducks and Langshan Chickens, for Italian queens, or offers. Our stock is first-class.
E. W. PITZER, Hillsdale, Iowa. 9-10d

WANTED.—To exchange Golden Polish eggs for foundation or Italian queens. M. JACK,
Richmond, Ashtabula Co., Ohio.

WANTED.—To exchange eggs from first-class W. F. B. Spanish, I. B. Polish, Langshans, Houdans and B. Leghorns, or trios of the fowls, for Italian bees or queens. Write to JOHN BERR,
9d
Braceville, Ills.

WANTED.—To exchange Ital. or hybrid bees, or last year's tested queens, for pure-bred Langshan eggs.
JULIUS HOFFMAN,
9d Canajoharie, Mont. Co., N. Y.

WANTED.—To exchange with reliable parties one New American Evaporator. No. 3, factory size, capacity 25 to 30 bush. per day, with bleacher and slicer complete; used only two weeks; cost \$260, for full colonies of Italian bees in chaff hives, or registered cattle or offers. JAMES A. HAYNES,
9-10d
Stockport, Col. Co., N. Y.

WANTED.—To exchange Italian bees and queens for comb fdn., one-lb. sections, or an extractor, either a Novice or Muth's Standard for L. frames. See ad. in this number of GLEANINGS. 9d
MISS A. M. TAYLOR, Box 77, Mulberry Grove, Bond Co., Ill.

WANTED.—To exchange Italian Bees in Heddon Hives at \$4.00, for farm wagon, Jersey cow, Imp. Ital. queen, or offers. C. WEEKS,
9d Clifton, Wayne Co., Tenn.

WANTED.—To exchange platform scale, 600 lbs. (Howe); and oil-stove (Monitor) for Simplicity hives, frames, sections, or offers.
H. H. RICHEY, Lore City, Ohio.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is often times quite an accommodation to those who can not afford higher-priced ones.

A goodly number of black and hybrid queens for sale; hybrid, 40c; black, 20c; mismatched, 45c.
W. G. HAYEN, Pleasant Mound, Ill.

We can furnish a few hybrid queens at 50c each; also black or Tar-bee queens at 25c each. Apply to
8d SYKES & WILLIS, Elizabethtown, N. C.

I have three black queens in my apiary that I shall remove before long. Italians are to take their place. Who wants the three for 50 cents?
C. F. GUNN, Jubilee, Davidson Co., N. C.

I have a lot of hybrid queens for sale; price 50c in April; May, 2 for 75c. Safe arrival guaranteed.
H. M. MOYER, Hill Church, Berks Co., Pa.

FOR SALE.—Several hybrid queens at 50c each, by mail.
PELHAM & WILLIAMS,
Maysville, Mason Co., Ky.

FOR SALE.—Mismatched Italian queens in May, 45c each; June, 40c. Twenty on hand and will have more soon. Prompt shipment. Safe arrival and satisfaction guaranteed. S. H. COLWICK,
Norse, Texas.

SECTIONS.

I will sell nice white basswood sections for \$3.00 per 1000, smooth on both sides, 4 piece all dovetailed, 4 1/4 x 1 1/4. Send for sample.
7tfdb W. S. WRIGHT, Battle Creek, Mich.

FOR BEES See April 15 GLEANINGS, page 323.
H. M. MOYER, HILL CHURCH, Berks Co., Pa.

**DADANT'S FOUNDATION FACTORY, WHOLE-
SALE AND RETAIL.** See advertisement in another column. 3htfd

BEES! BEES! BEES!

Do you want full colonies of Choice Italian Bees cheap? Choice colonies in Cary improved L. hives, \$8.00 per colony. Also a few colonies in Kidder hives, frames 10 1/2 x 11 1/2 inches at only \$7.00 per colony. Those in want of fine Italian bees will do well to send their orders to W. J. HILLMAN,
Green River, Vt.

PURE ITALIAN BEES FOR SALE.

Two-frame nuclei, \$2.00; 3 frame, \$3.50. If larger nuclei are wanted, add 50 cts. for each additional frame. Full colony in A. I. Root's Simp. hive, \$6.00, each to contain a tested queen and plenty of bees and brood, all on wired L. frames drawn from fdn. To be shipped in May; safe arrival guaranteed. I shall do by all as I would be done by. Address
7-10db N. A. KNAPP, Rochester, Lorain Co., O.

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GLEANINGS AS AN ADVERTISING MEDIUM.

Eighty-six tested queens have been mailed. All were heard from but five. There has been no loss this spring. Accept our thanks for the adv't. It will bring the hundred dollars. Next year, God permitting, 200 queens will be ready in April, for \$1.00 each.

J. W. K. SHAW & CO.
Loreauville, Iberia Par., La., May 2, 1887.

MORAL PATENTS.

The following very kind letter from Norman Clark, the inventor of the smoker bearing his name, is at hand, and we here give it to our readers:

Friend Root:—Last evening our pastor's subject was "The kindness of kindness," and he closed something like this: In earlier days, there were men who roved the world over to find that which would give perpetual youth. In these latter days many find it, and it is those who have Christian charity, who have sympathy for all; who love their neighbors as themselves.

Thanking you again for being so thoughtful of me, I remain very truly yours,—
NORMAN CLARK.
Sterling, Ill., Apr. 25, 1887.

Attached to the letter is a receipt. It reads, "Received of A. I. Root one hundred dollars, a gratuity on smokers, and for which I thank you."
NORMAN CLARK."

KIND WORDS FROM OUR CUSTOMERS.

PAID FOR ITSELF THE FIRST DAY.

The goods you sent us are here, and give entire satisfaction. The machine for fastening fdn. in sections is a fine thing, and paid for itself the first day used. We should not want to do without it.
Mazo Manie, Wis. W. A. JOHNSON & BRO.

ONE WHO LIKES THE CLARK SMOKER.

Clark's smoker is the most perfect of all smokers I ever saw; is the easiest handled, and gives the strongest draft of all smokers. I would not do without it for the price of five smokers. I have been keeping bees for the past nine years, and have decided that tobacco smoke is injurious, both to bees and myself. Often, after taking honey from the hive, I notice that many bees become sick and die, caused by strong tobacco smoke, and I have often been sick myself from smoking.
Manilla, Ind., Apr. 30, 1887. G. E. HAWKINS.

THE HOME TALKS EXERCISING AN INFLUENCE.

I should like to tell you in what esteem your Home Papers and neighborly talks are held. If there were nothing in GLEANINGS but Our Homes I should take it for the influence your talks have with me. I feel that the principles of your talks are permeating my life, and I know that my conduct with my fellow-men is favorably influenced by the ideas advanced in your familiar home-like talks. Our Homes in Mar. 15, especially, touched a tender spot in my heart, for it is now but a year since I parted with a dear and only brother, the loss of whom I could not for a long time become reconciled to. But I wish from experience to corroborate your talk and consolation to the friend referred to.

For some time after my bereavement this prayer was almost continually in my mind:

My God, my Father, while I stray
Far from my home, on life's rough way,
Oh teach me from my heart to say,
Thy will be done.

Next came the hymn beginning,

Jesus, lover of my soul,
Let me to thy bosom fly.

I can truly say, that in Christ alone is consolation and help in these times of trouble. I believe these afflictions are ordained to wean us from the world; for as one by one we lose our dear friends, those whom we are living and working for, we of necessity transfer our affections from earth to heaven; for it is written, that "where the treasure is will the heart be also." I hope you may be spared many years to point the straight and narrow way that leads to life.
C. W. COSTELLO.

Waterboro, Maine, Apr. 24, 1887.

YES, I WILL

Devote my time exclusively to rearing pure Italian queens. If you know my strain, send me your orders; if not, send me a stamp for samples of live workers. Untested queens, \$1.00 each; \$9.00 per dozen. Tested queens, \$1.50 each; \$15.00 per dozen.
tdtb
THOMAS HORN,
Box 691, Sherburne, N. Y.

HYBRIDS in 10-frame S. hive, with hybrid queen, only \$3.50 per full colony. Italians in 10-frame S. hive, with tested queen, \$7.00 per full colony. Satisfaction and safe arrival guaranteed. Ready now. J. B. WHITLOCK, Eufaula, Ala.

FULL COLONIES of ITALIAN BEES

4 and Queens for Sale.

10 L. frames of bees, queen, brood, and honey, all for \$5.00. Tested queens, \$1.25 each. 10-12d
A. G. BRUSH, Susquehanna, Pa.

QUEENS.

Ark. or big brown, and pure Italians mated with brown drones, 20 to 60 cents each; ready now and through swarming season. 10tdtb
SALLIE MORROW, Wallaceburg, Ark.

A Barometer for Gardeners and Farmers.

We have finally succeeded in getting a wonderfully pretty little aneroid barometer that we can sell as low as \$2.50. One of them has been carefully tested by the side of our mercurial barometer, and it follows the rising and falling of the mercury with wonderful accuracy. It seems to me that these little instruments ought to pay for themselves over and over again for any farmer or gardener, or any person who is dependent on the vicissitudes of the weather. The instrument much resembles a pretty little clock, and it may be sent by mail safely for 10 cts. extra for postage. You will remember that my method of using any barometer is to pay little or no attention to where the indicator or mercury stands. When you wish to know what the weather will be, tap the instrument with the end of your finger. If the indicator (or mercury) falls, there is a prospect of rain; if it rises, you are pretty safe in deciding there will be no rain very soon. If a considerable storm is approaching, the mercury will keep falling for some hours, and it will drop a little every time you touch it, even though you tap it as often as once an hour. When it keeps dropping for several hours, look out for a storm or a big wind. If it keeps rising for several hours, go on with your work and you will very seldom be misled.
A. I. ROOT, Medina, O.

BEES CHEAP!

I have had charge of A. I. Root's apiary for three years. I intend to start an apiary five miles from town; will sell full colonies and nuclei cheap. Fine queens a specialty. For particulars, address

WM. P. KIMBER,

6tfdb Medina Co. Medina, Ohio.

FOR SALE.—BEES, good colonies in shipping-cases, with 9 Langstroth frames. Italians, \$4.50; hybrids, \$4.00; delivered at R. R. station any time after May 1. MISS MABEL FENN,
7tfdb Tallmadge, Ohio.

BROOD FON. FOR L. FRAMES,

Six to seven feet to the lb., in lots of 25 lbs. and upward, for 35 cts per lb.

JAMES McNEILL, (10tfdb) **HUDSON, N. Y.**

THE 100,000 sections, advertised in last month's GLEANINGS, is sold. We are cutting on 100,000 more. All persons in want of sections, V-groove, 1 piece, should write for sample and prices at once. 10d Address **J. B. MURRAY, Ada, Ohio.**

FINE RUBBER PRINTING-STAMPS FOR BEE-KEEPERS, Etc.

Send for catalogue. **G. W. BERCAW,**
9-10-11-13-14-15d Fostoria, Ohio.

ARMSTRONG'S NEW REVERSIBLE HIVE.

The cheapest, simplest, and most practical hive ever offered to the public. H. D. Cutting, of Clinton, Mich., says: "Let me congratulate you on having such a good hive. Your reversible-section case is perfection itself." Sample hive complete, with paint, \$2.50. Send your name and address, plainly written on a postal card, and receive our 32-page illustrated catalogue free. Address

512db **E. S. ARMSTRONG, Jerseyville, Ills.**

200 COLONIES OF Choice Italian & Albino Bees

FOR SALE AT GREATLY REDUCED PRICES.

Also a full line of Bee-keepers' Supplies. **COMB FOUNDATION** from choice select yellow beeswax a specialty, at very low rates, both wholesale and retail.

Do not fail to send for my 27th Annual Catalogue before purchasing.

Address **WM. W. CARY,**
3tfdb COLERAINE, MASS.

Mention this paper when writing.

FOR SALE CHEAP.

Owing to different arrangement of machinery in our new building we have for sale at half their cost the following:

Three 18-in. adjustable drop-hangers for a 2 15-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Six 18-in. adjustable drop-hangers for a 2 7-16-in. shaft. Cost \$10.00 each; will sell for \$5.00.

Eight 30-in. iron pulleys, 10-in. face, for a 2 7-16-in. shaft. Cost \$8.00 each; will sell for \$4.00.

These are just as good as new, and a bargain to the man who needs them.

A. I. ROOT, Medina, O.

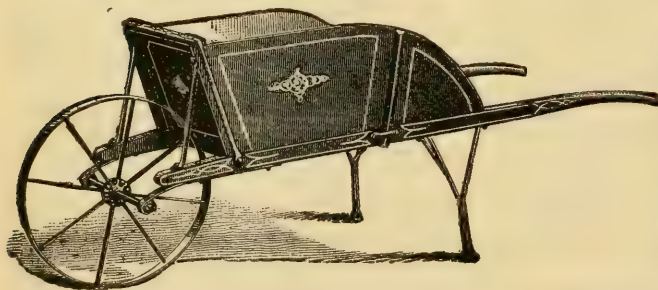
FOUL BROOD, NO !!

I never had a case nor saw one, but I have seen and had hundreds of good queens, and will sell you one of them for 65 cts., or 5 for \$3.00. 26 B. Leghorn eggs for \$1.00. Orders for queens booked now, and for eggs, filled now. Catalogue for stamp.

248d **C. M. GOODSPEED, THORN HILL, N. Y.**

❧ A WHEELBARROW ❧ FOR ❧ BEE-KEEPERS. ❧

ALSO A WHEELBARROW FOR WOMEN, CHILDREN, AND
PEOPLE WHO ARE NOT VERY STOUT.



OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

them at their convenience, when times were dull. Well, friends, the wheelbarrows are here, and they are a surprise to everybody. We show you a picture above. We have two sizes—the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so you can tighten them up for wear. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only \$4.00, the same as our iron wheelbarrow. The larger size is \$4.50. The only discount that can be made is 5 per cent off for two; 10 per cent off for five, or 15 per cent off for ten or more. They can be sent either by freight or express. It is only five minutes' work to put one together.

A. I. ROOT, Medina, Ohio.

E. M. HAYHURST'S FINE ITALIANS.

\$4.50 TO \$5.50 PER COLONY.

On account of ill health I have decided to sell my **Queen-Yard** this season, at the following prices: One full colony, \$5.50; two or more, \$5.00 each. These bees are in one-story, ten-comb Langstroth hives; have fine young tested queens, and a good amount of brood and bees, with honey for the trip; are perfectly healthy, no foul brood in my yard or neighborhood; they are extra fine stock, and first-class honey-gatherers. If wanted in rough shipping-box instead of hive, the price will be 50 cts. per colony less than above. Safe arrival guaranteed. Will begin shipping about May 1st.

8tfdb

P. O. Box 60.

E. M. HAYHURST, KANSAS CITY, Mo.

DO NOT MISS THIS CHANCE TO GET ITALIAN QUEENS AND BEES

And EGGS FOR HATCHING from seven varieties of **High-Class Poultry**. Choice breeding stock, and prices low. Send for Circular and Price List. **CHAS. D. DUVALL,**
Spencerville, Mont. Co., Md.

500 FRAMES OF BROOD

Two-thirds full, well covered with bees (Italian), no queen, in two-frame nucleus hives; just the thing for queen-rearing, \$1 each frame, after June 1st.

Twenty last-years' tested Italian queens, \$2 each. 8-9-10d M. ISBELL, Norwich, N. Y.

ITALIAN QUEENS.

Reared from select mothers. Untested, \$1.00; Tested, \$2.00. **H. G. FRAME,**
North Manchester, Ind.

Italian Bees and Queens, IN MAY AT JUNE PRICES.

Full colonies \$6.00 (Simp. wired frames, combs built on fdn.). Bees per lb., 90 cts.; $\frac{1}{4}$ lb., 50 cts. Frame of brood and bees, 75 cts. Tested queens, \$1.50. Untested, \$1.00. Queens reared from imported mother. **MISS A. M. TAYLOR,**
9tfdb Box 77. Mulberry Grove, Bond Co., Ill.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to ag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; Chas. H. Green, Berlin, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for *samples free*, and price list of supplies, accompanied with **150 Complimentary and unsolicited testimonials**, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3brtd Hamilton, Hancock Co., Illinois.

Holy-Land Bees and Queens, Cheap.

Full Colonies, Nuclei, and Queens.

SEND FOR CIRCULAR.

GEO. D. RAUDENBUSH, - READING, PA.
8-10db

For Sale. Full Colonies of Italian Bees, 2, 3, and 4 Frame Nuclei.

Tested queens before June 1st, \$1.50 each; after, \$1.25 each. Untested, before June 15th, \$1.00 each. After that date, single queen, 75 cts.; six for \$4; twelve for \$7.75. Pounds of bees, same price as untested queen.

7tfdb

I. R. COOD, Nappanee, Ind.

SECTIONS.

Nice white poplar, 4-piece all dovetailed, $\frac{1}{4}$ x $\frac{1}{4}$ x $\frac{1}{4}$ sections. Send for prices.

9-12db

S. D. BUELL, Union City, Mich.

LOOK AT THIS!

My improved Smoker can be taken apart to clean it by turning a button. Lay the tube on the coals and let it burn out. The valve will come off in the same way to clean. Send \$1.00 for a Smoker and see how well you will like it. I will please you or return your money. I have tested it all of last season in my apiary of 79 hives, and it gave perfect satisfaction. If wanted by mail, add 25 cts. to pay postage. Address **W. H. SMITH,**
9-16b BROOKTON, TOMPKINS CO., N. Y.

IF YOU ARE WANTING

ITALIAN, HYBRID, or GERMAN BROWN BEES,

Simplicity Hives, or Section Boxes.

Send 2-Cent Stamp for Circular to

6tfdb

THOMAS CEDYE,

Box 653.

La Salle, La Salle Co., Ill.

700 LBS. BEES

I will sell these at \$1.25 per lb. Also untested Italian queens, bred from imported mother, to go with bees, at \$1.25 each. Cash must accompany orders, Ref., 1st Nat. Bank here. **E. Burke, Vincennes, Ind.**
7-10db

FOR ITALIAN QUEENS EARLY and CHEAP

611db Address **W. P. Davis, Goodman, N. C.**

COMB FOUNDATION.

Dunham Brood Fdn., 40c. per lb.; extra thin Vandervort Fdn., 45c. per lb. Wax made into fdn. for 10 and 20c. per lb.

SAMPLES FREE.

3-tfdb.

F. W. HOLMES, Coopersville, Mich.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—The sales of comb honey the past two months exceed largely sales of corresponding time last year. The large stock in dealers' hands is becoming less every day, and the present outlook is, that all the best grades will be closed out before the new crop arrives. There is quite a large stock of dark and off grades of white, which we apprehend will be carried over. Prices are ruling low. We quote as follows.

White comb honey	9@12
Dark " "	5@7
Cal. " "	8@9
California extracted	5@6
Beeswax.—23@24½.	

We beg to inform bee-keepers through your valuable journal of the removal of our place of business as below, where we have better facilities for handling honey, and respectfully invite all beekeepers visiting our city to give us a call. Yours truly,
MCCAUL & HILDBRETH BROS.

May 10. 28 and 30 West Broadway, near Duane St.

MILWAUKEE.—*Honey.*—The demand continues very good for honey in this market, and values remain unchanged on all grades below the very finest, and we will now quote market firm.

Finest white 1-lb. sections	12@12½
Choice " 1-lb. "	11@12
" " 2-lb. "	10@11
Dark not wanted, and imperfect slow.	
Extracted, finest, white kegs	6¼@7
" " white, good, kegs or bbl.	6@6½
" " dark	4@4½

Beeswax.—25c. A. V. BISHOP,
May 4, 1887. 142 W. Water St.

DETROIT.—*Honey.*—There has been more inquiry for comb honey of late, and the stocks of honey on hand will be nearly all disposed of before the new crop. Best comb honey, 11@12 in 1-lb. sections.

Beeswax, 23@24c. M. H. HUNT,
May 12, 1887. Bell Branch, Mich.

CLEVELAND.—*Honey.*—The market is clearing up nicely in honey, with prices unchanged. Best white 1-lb. sections, 12@13. Second, quality 10@12. Buckwheat dull at 8@9. Extracted, 5@6.

Beeswax.—25c. A. C. KENDEL,
May 10, 1887. 115 Ontario St., Cleveland, O.

NEW YORK.—*Honey.*—We report market dull. There is a limited demand for buckwheat comb honey; and if it continues the market will soon be bare of all comb honey. We quote:

Buckwheat and dark, 1-lb., 6@7; 2-lb., 5@5½.
We advance price on California extracted, and now quote 5½ in jobbing lots.

May 11, 1887. THURBER, WHYLAND & Co.,
New York.

PHILADELPHIA.—*Honey.*—Honey nominal, and same as last reported.

Beeswax, steady. Choice yellow, 22@23; dark, 20; white, 27. PANCOAST & GRIFFITHS,
May 10, 1887. 242 South Front St., Phila.

BOSTON.—*Honey.*—1-lb. best, 14; 2 lb. best, 12; extracted, 5@7.

Beeswax, 24c. BLAKE & RIPLEY,
May 10, 1887. 57 Chatham St., Boston.

CHICAGO.—*Honey.*—Honey is selling slowly with the best white 1-lb. sections bringing 12c in a small way. 2-lb. about 8c; and dark 7c. The offerings are not as large by half as last month, and it looks as though the crop was mostly in sight. Extracted honey, 4@6.

Beeswax, 25 for yellow. R. A. BURNETT,
May 10, 1887. 161 South Water St., Chicago, Ill.

I have a barrel of nice well-ripened candied honey, medium light in color. I think it is principally white clover, as we have so much growing all around here. I will take 8 cts. per lb. for the honey of any one who will take all of it, and I will put it on the cars at our nearest station, purchaser to pay the charges after it is put on the cars.

MRS. H. F. BARGER,
Border Plains, Webster, Co., Ia.

ESSAYS

On the Production of Comb Honey

will be given in the June issue of the **American Apiculturist**, by G. M. DOOLITTLE, DR. G. L. TINKER, DR. C. C. MILLER, and other prominent and well-known bee-keepers. Ready May 25. Price 10 cts. Address

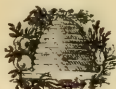
10-11d **AMERICAN APICULTURIST,**
Wenham, Mass.

1887.—

—1887.

PLEASANT VALLEY APIARIES

*PURE



BRED*

ITALIAN ALBINO QUEENS.

One queen, warranted purely mated, after

June 1st... \$ 80
¼ dozen " " " " " 4 50

Tested selected young, large and light-colored 2 00
Full colonies in Langstroth or Simplicity hives,

with select tested queen, after May 15th... 6 00

Safe arrival and satisfaction guaranteed. In the past seasons that I have advertised in GLEANINGS and other bee-journals I have endeavored to please all, and am not aware that I have one dissatisfied customer; if any, shall be pleased to have a statement. My stocks are perfectly healthy. No foul brood in this vicinity.

8td Address **E. L. WESTCOTT,**
Fair Haven, Rutland Co., Vt.

FOR SALE!

Eight or ten Colonies Italian and Hybrid Bees in Simplicity or Root Chaff Hives.

What am I offered per colony in cash? They are in first-class order. D. S. BASSETT,

10d Farnumville, Worcester Co., Mass.

FOR SALE CHEAP.

First-Class Hybrid Bees ON L. FRAMES.

Address **J. C. SEIDEL,**
Of the firm of A. F. Stauffer & Co.,
10tfdb **STERLING, ILL.**

READY NOW.

Three S. frames of brood, covered with bees, and \$1.00 queen..... \$2.50
Same with 5 frames..... 3.50
3 lbs. bees and \$1.00 queen..... 2.50
Tested queens, 25c extra.

10d **G. W. GATES, Bartlett, Tenn.**

WYANDOTTES and HOUDANS!

Eggs for hatching, \$1.50 per sitting; two or more, \$1.00 each; eggs only are cheap; fowls first-class. Also one white Wyandotte cockerel to spare, at \$3.00. JAMES EVANS,
10tfdb Box 89, Schaghticoke, N. Y.

WRITE TO JOHN CALLAM & CO.,
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A CASE OF HIBERNATION.

AN IDEAL CELLAR FOR WINTERING BEES, AND HOW IT HAS WORKED FOR THE PAST THREE YEARS.

A YOUNG man, resident about 50 miles from here, whose apiary I visited the other day, has, I think, solved the hibernation problem, so far as cellar wintering is concerned. He has been quietly studying apiculture for some years past, and three years ago last fall he built a cellar for bees on the most approved principles he could gather from the experience of the best bee-keepers, as recorded in the bee-journals. The result is, that he has wintered his bees for three successive winters, practically without loss. When I visited him the other day he had about half his colonies set out on their summer stands, and we looked most of them over. They were in fine condition, some of them were overflowing with bees. One colony, on four frames, which he did not expect to survive, were in good shape, and, in his judgment, were stronger than when set away in the fall.

There were about 250 colonies in the cellar, all told. With half of them removed, the thermometer stood at 52°; it had ranged from 52 to 58° all winter. Yet at this high temperature the bees maintained perfect quietude. Not more than five pounds of honey per colony had been consumed, on the average.

I call this a case of hibernation, from the stillness that reigned in the cellar, the small amount of stores consumed, and, I may add, the fewness of the dead bees to be seen on the cellar floor, which had not been swept at the time of my inspection. I am sure that, had the bees been very active, and

exposed to a lower temperature, they would have consumed far more honey, and there would have been a larger number of dead ones on the cellar floor.

All who read this will want a description of the cellar which has proved such a suitable winter home for these bees. It is about 18x20 in size, walls 10 feet high, and built of stone. A railway runs through the farm on which this apiary is kept, and from a deep cutting there is a sub-earth air-duct, 200 feet in length, made of 10-inch drain-tile, which supplies fresh air at the temperature of the earth away below frost. A pipe for the escape of foul air runs up from about the middle of the cellar, and is connected by an elbow with the kitchen cooking-stove. The bottom of this pipe spreads out into a flange 3 feet in diameter, and is supported on 4 bricks set edgewise. There is a wooden pipe on each side of the cellar for the escape of hot air. These are set in the wall, about 7 feet from the floor. The escape is through a six-inch hole cut in the horizontal top of each pipe. Outside there is an elbow, and the end projects a couple of feet above ground. Through one of these pipes, which was open at the cellar end, there was a perceptible current of warm air at the time of my visit. Several times, during mild spells in winter, these pipes had been used to prevent the inside temperature becoming too high.

Evidently, this cellar worked like one huge hive. Factory-cotton quilts only, covered the bees. The cellar is a very dry one, the earth on the floor being in a state of dust, and the dead bees, what few there were, dried up, their bodies making an audible crackle when you crushed them with the foot. There was no cellary smell perceptible. The air was as fresh and sweet as could be desired.

If I had the conditions of outdoor wintering as clearly demonstrated as they are for cellar wintering, I should rejoice. But there are still some points that are dubious to my mind. These, however, I will reserve for discussion some other time.

WM. F. CLARKE.

Guelph, Ont., Can., May 2, 1887.

Very good, friend C. The only difficulty in the way of a perfect understanding in the matter of hibernation is the definition of terms. It does not seem as if we ought to call the case mentioned above, strictly hibernation. The Indian story, however, on page 343, I suppose might be called hibernation and nothing else, for the bees were, in that case, stiffened by cold until they were apparently lifeless. They were then put into the cave and kept in this stiffened, motionless condition through many months of winter, to be waked up again when the flowers bloomed. We are glad to get the good report in regard to sub-earth ventilation.

UNSEALED CELLS IN SECTIONS.

IS W. F. CLARKE'S BEE-STING THEORY OF THE NEW USE OF A STING SUPPORTED BY FACTS?

IN reply to friend Doolittle (GLEANINGS, p. 123), if honey is always cared for as he directs, it may be just as well to have some cells left unsealed in sections, *providing* the honey has the same care afterward. But after he has ripened these unsealed cells till there is no danger of their running, if those sections are left in a store or in some purchaser's pantry, will not these unsealed cells attract moisture much more rapidly than the sealed ones? I think I feel safer to have all unsealed cells emptied.

USING PARTLY FILLED SECTIONS.

In this connection I want to caution the inexperienced against following to too great an extent the advice of Mr. Frank A. Eaton, GLEANINGS, page 131. A year ago I think I would have given just the same advice. In fact, in my book, "A Year Among the Bees," I speak of saving partly filled sections to use again. I have made considerable use of them, and I think generally to good advantage; but after last year's experience I shall not use them again unless it be a single one in a super. I had quite a number of sections partly filled, left over, and among them were some containing candied honey. These sections were filled, as friend Eaton suggests, very promptly, and when taken off I thought I had done a nice thing; but very soon they began leaking through the sealing, although kept in a good place, and none that commenced leaking could be sold as first-class honey. Contrary to friend Eaton's experience, and I think to my own previous experience, the honey in some of these sections was candied. This year I shall put on many sections that were partly filled, but the honey was all extracted last fall. I formerly put these partly built sections in the outer rows of the super, but further experience makes me prefer to put them in the center.

THE STING-TROWEL THEORY.

Not long ago I saw an item in a newspaper to the effect that "Naturalist Clarke" had discovered that the sting of the bee is used as a trowel, etc. This was stated in all seriousness; and if it is to pass

into general currency as a fact, and *if* it is not a fact, the sooner it is contradicted the better. When I first read the statement in friend Clarke's book I was somewhat startled, and didn't know whether to think there was some joke about it or whether a practice of the bees of thousands of years' continuance had just come to light. Just why the proof for any such belief has not been challenged before the communication of friend Savage (I think he is the first), I can not say. Possibly respect for the source whence it emanated. I hereby tender my apologies to friend Clarke for my silence hitherto, a silence of which I am by no means proud, as I do not know whether to attribute it more to cowardice or laziness. I don't believe there is any proof that bees ever work wax with their stings. On page 144 of GLEANINGS friend Clarke occupies about a page in reply to friend Savage's communication, yet I fail to find any thing in it to establish a belief that the sting is used as a trowel. If such a thing is true, has any one ever seen the operation? Surely many have watched bees in the operation of wax-working. During the honey harvest, bees are constantly working wax, and I have seen them at it many a time, but never with the sting. Thousands have probably seen the same thing, but I think no one has ever seen the sting used as a trowel. If they have, I think it has never appeared in print. This, it is true, is only negative proof against the theory; but in the absence of any positive proof on the other side, I think it counts for much.

In his article, friend Clarke makes use of Ernest's silence as so much testimony in favor of the sting-trowel theory. If Ernest has any shadow of proof of the truth of the theory, will he please let us have it? At any rate, will he please say whether he has or has not any evidence that bees work wax with their stings?

C. C. MILLER.

Marengo, Ill., May, 1887.

On page 20, in reply to D. F. Savage, after speaking of the mechanical structure of the sting, I said, "As to the office of the sting curing honey or tapping the cells, I have nothing to say, either pro or con." Friend M., this was, in fact, all I could say. I had never made any observations at the hive, to determine this question, aside from my microscopical observations, and was unable to find any literature bearing directly on the point. The only argument I can use in refutation of Clarke's theory of the bee-sting as a trowel is, that its mechanical construction (if my observations with the microscope are correct) would make it almost impossible. I once spent my whole vacation, of a week's time, in dissecting, studying, and mounting bee stings. I used a Bausch & Lomb microscope, with American lenses. I had at my disposal not only all the necessary dissecting-tools, but a 1-inch, $\frac{1}{2}$ -inch, $\frac{1}{4}$ -inch, $\frac{1}{8}$ -inch, and a $\frac{1}{16}$ -inch objective, and I am prepared to say that the bee-sting is in no respect like a trowel; and by watching its pumping motion under the microscope I could discover nothing in the working of the muscles that would lead me to believe that a bee could use it as a trowel. There is, however, nothing in the construction of the sting that would preclude the bees from puncturing the cells; and those who have had experience with the "business end" of a bee would not say that this is impossible. If our read-

ers should so request it, I will, during the winter months or when I have more time, take the specimens which I mounted during that week's vacation, stand over our engraver, and have him reproduce them upon the block for print.

In addition to the above remarks by Ernest, I would say that I have watched bees for hours through the glass of an observatory hive, and I have seen them build the cells, fill them with honey, and cap them over, but I never saw any movement that would indicate that the bee was ever in the habit of using the sting at all, or to indicate that he remembered he had a sting, while engaged in the business of capping over newly gathered honey, and I have seen them put on the last finishing touch.

A PLAN FOR MAKING ARTIFICIAL SWARMS.

ALSO SOMETHING ABOUT HOUSEHOLD CONVENIENCES.

IF Tom, Dick, and Harry (and two other fellows), all living in different places, would each give me a frame of black brood, covered with bees, could I unite them in an empty hive with a frame of Italian brood, with a capped queen-cell from my own hive, and thus form a good working colony?

I was just remarking, that I found it next to impossible to get honey now that tasted like that eaten twenty-five or thirty years ago on the old farm. Seeing the article about honey remaining in the hive to ripen giving it an improved flavor, suggests a possible explanation. Or is it because the honey eaten in those days was eaten while two little bare feet dangled under the table, while now I wear boots and walk with a cane, while one pair of hands that dished out that honey has rested under the snows of over twenty winters?

Relating to your suggestion about providing labor-saving machines for the housewife, let me say a word. Washing-machines are generally voted a nuisance. I had no faith in them. My mother-in-law tried an improved "Western Washer," of Jamestown, N. Y. When she used it a year she said it was a grand success. I then risked getting one for my wife. She also says it is a success. If you or your readers wish to try one of these machines, by all means get the number 3. It costs two dollars more, but it will wash bed-clothes. If we can find any thing to lighten poor tired women's work on washday, we should publish the good news. We also have an Empire clothes-wringer. They are double-gearred, and easily turned. There is continual complaint about this make of wringers getting out of order. It is the fault of the manipulator or washwoman. It is so easy to turn, that the operator will run sheets or table-cloths through on the same adjustment they use for towels and napkins, thus bursting out the rolls. By all means get the easy-running Empire make, then teach the girls how to use it. Now, do not think I am securing a free advertisement for any appliances. I am simply trying to encourage an effort to lighten and facilitate work. Instead of beating our eggs with a spoon we use a Dover egg-beater. Our butter is churned in about

twenty minutes with a Union churn from Tiffin, Ohio. The churn is worked with a crank. The operator can sit down and read GLEANINGS while making the cream fly for butter. Some years ago when I was a drug clerk I learned many useful things. I learned the value of Basilicon ointment (accented on the second syllable). It is good for burns, bruises, healing, boils, or sores of almost any kind. Once a lady had erysipelas on her arm. She used this, and the arm got well. Whether the ointment cured it or not, I could not say without further trial. It is good to keep in any house where there are children. It can be sold for about five cents an ounce. Perhaps it would help bee-stings. I never tried. It is not a quack medicine, but a recognized pharmaceutical preparation.

Pittsburgh, Pa., May, 1887. P. S. DILWORTH.

Friend D., your plan will work tiptop, even if you don't bother the "two other fellows" at all. In fact, it is almost identical with one of my favorite methods, as given in the A B C book. When you get those combs covered with bees, however, look sharp that you don't take the queen. The only safe way is to find the queen before you take this frame of brood and bees.—I think you have hit it exactly in your suggestions as to why the honey tastes different now from what it used to.—I am glad that you and your wife have found a washing-machine that pleases you. We have tried, I do not know how many; but Mrs. Root always votes them "too much machinery;" that is, sooner or later she decides it is more bother to get the thing out, get it ready, then wash it up and put it away than it takes to do the work with a good tub and one of our best stoneware washboards. Your suggestions in regard to the use of wringers would apply, I think, to the use of almost any of them.—I am glad to know that our neighboring town of Tiffin makes churns so good that they get away off to Pennsylvania.—Although I don't believe much in medicines, your Basilicon ointment may be excellent where such a thing is needed. The price is certainly in its favor; but I don't believe it will make a particle of difference with a bee-sting.

HOW TO RAISE CORN.

PROF. COOK GIVES US SOME IMPORTANT SUGGESTIONS IN REGARD TO THE MATTER.

IT may seem a little presumptuous for a bee-journal to take up a subject of such magnitude, especially while there are so many papers devoted to the great staples. Well, there are several reasons why I asked Prof. Cook to give us his ideas on corn culture. In the first place, we are all of us interested in every thing that friend Cook writes, no matter whether it is bees, corn, or kitchens. Friend Terry has given us a book on potato culture that has interested both young and old. I think the following in regard to corn culture will be received much in the same way.

PROF. COOK'S METHOD OF RAISING CORN.

As per your request, I will detail the method that my brother and I use in raising our most important

field crop—our corn. First, we always plow sod ground for corn, and aim to have the same covered with barnyard manure the previous winter—the earlier the better. This is drawn direct from the barn, and evenly spread when drawn. This we think very important. Barnyard manure means good corn, good oats the next year, good wheat the following season, and usually good grass the next two years. We fit our ground in May as fast as we plow. Mr. Terry urges none too emphatically the importance of following the plow closely with the harrow. With our ground in good order—the soil being deep and mellow—we are ready to plant by May 20th. We do not believe we gain any thing by too early planting. Plants, like animals, rarely recover from a serious backset received just at the dawn of life.

We make sure the previous autumn that our best corn is selected for seed, and hung up in a dry warm room. Thus early cured and dried it rarely fails us, even though not fully matured and hardened when husked. Good seed is all-important.

We plant with a seed-drill, plugging up all the holes except the two outside ones. We thus plant four feet apart. It requires about twelve quarts of corn to the acre; but corn is cheap, and we regard it as most desirable that it should be planted thickly, for reasons yet to be stated.

Now let us see what we have gained in this: Instead of working hard all day with a hoe, and planting, say, two acres, or with a hand-planter and seeding three or four acres, we have worked not nearly so hard, and have from twenty to twenty-four acres all planted. We walk in drilling, and space every other row with the eye. With close attention and practice one becomes so skillful that he can row his corn so that the most fastidious would praise it. Soon after the corn comes up we commence to harrow, using a fine slanting-tooth harrow. This takes a wide sweep, and so mellowes the ground and destroys the weeds that the corn is materially hastened in its growth. This harrowing does not cease with the appearance of the corn, but is continued till the latter is three or four inches high.

"But," says one, "what about tearing up the corn?"

Of course, some is torn up; but we planted so generously that there is plenty left. We thus kill the weeds right at the outset, and keep the ground in such fine order that the corn seems fairly to leap into the air. After the corn gets up four or five inches we then put in the wheel cultivator, going astride the rows, and never use a hoe at all. In this way we keep our corn free from weeds, and secure much better crops than of old when we used a hoe to plant and to weed. In this way we get a most excellent yield of this best field crop, with the minimum of labor. In August we sow rye in our cornfield. This makes very fine fall and spring pasture, and is no detriment to our land. Indeed, this crop enriches the soil, as we plow it under in April or May for oats.

If, now, we can cut and bundle our corn with a reaper, and thrash it with a machine, we shall have solved the whole question of raising corn with the least amount of labor.

This coming fall I shall convert about one-third of my corn crop into ensilage. I shall allow the corn to glaze, then cut it and let it lie to dry and wilt for a day or two, then cut it into inch pieces,

and run it into silos which are about 15 feet in each of their three dimensions. In filling I shall work slowly—put in one day, then wait one or two. This gives us excellent feed, and enables us to keep much more stock.

An acre of good corn will give about 15 or 20 tons of ensilage, three tons of which are surely equal to one ton of hay. Fifty pounds of this is a good daily ration. We thus see that, from an acre of corn made into ensilage, we can keep three cows for six months. In this way we can so stock up our farms that it will be easy to get that best fertilizer, barnyard manure, without paying out money, and, at the same time, secure the best returns from our farms. It is just as desirable to make two blades of grass do what one did before, as to cause two to grow where one did before.

A. J. Cook.

Agricultural College, Mich., May 5, 1887.

It is a little singular, friend Cook, that I have been doing almost the same thing you recommend, with corn, peas, and a good many other garden crops. On our clay soil we find more benefit from using phosphate with wheat, rye, oats, and other such grains, and most of our drills are made to sow phosphate with the grain. The best crops of peas we ever had were put in with a drill by stopping up the tubes not needed. The grain-drill does all the marking, furrowing, manuring, dropping the seed, and covering, and does it more perfectly than can be done by hand. So much pleased have I been in putting all kinds of seed in with the grain-drill, that neighbor H. and I have just purchased one of the best grain-drills together. I expect to put our sweet corn in with it this afternoon, May 10th. The smoothing-harrow in place of the cultivator is also my favorite method. With a cultivator it takes a man and a boy and one horse. With two-horse implements we dispense with the expense of the boy (send him off to school, for instance), and do two rows or more at once with simply a man to drive the team. Sweet corn is so uncertain that we put it in thick as we sow, and then chop it out with the hoe when it is beyond danger from cut-worms and other like enemies. Then we have the ground all occupied. The finest stand of spinach I ever saw was put in with the grain-drill; and where farmers have such an implement at hand I believe it would pay to sow all the garden stuff. Perhaps I should say *pretty much* all; for when it comes to lima beans and planting potatoes, the grain-drill will not answer exactly. I would, however, run the grain-drill over the garden spot, charged with phosphate, before planting the garden to any thing. If you want to set out cabbage, celery, or tomato plants, your phosphate is nicely scattered and mixed in with the soil, and your ground is beautifully marked out. In fact, I don't know of a marker that marks any nicer than the grain-drill. For beets, onions, etc., the marks are just about the right distance apart; but if it is too close, take every other mark, or every third or every fourth one. For carrots and parsnips, nothing can fix the ground any nicer. In regard to the economy of labor by your plan, it surely saves time over the old style of planting in hills, as done in the old way.

A REVIEW OF HUTCHINSON'S BOOK.

FRIEND POPPLETON GIVES US SOME THOUGHTS
ON THE PRODUCTION OF COMB HONEY.

ALTHOUGH it may not have been in accordance with the rules of authorship, I announced, in the conclusion of my little book, that "all will find me ever ready to explain and defend my views; or, if necessary, acknowledge my errors." Before "explaining and defending" the one or two points upon which we differ, I wish to heartily thank Mr. Taylor for his kind words, and for the very fair manner in which he reviewed my book. Instead of setting a box over the hive, and completely surrounding and covering the hive with sawdust, Mr. Taylor prefers, as being more convenient, good division-boards and chaff or sawdust in the super. This question of leaving one or two sides of a hive exposed was discussed at one of our conventions at East Saginaw, and quite a number thought that packing upon only three sides of a hive was but little better than none. "A chain is no stronger than its weakest link" was the sentiment expressed. Candidly, I think the comparison is not a fair one, for I do think that a colony protected upon three sides will bear the cold with less danger of loss than will one that has no protection. I think a fairer comparison would be that of leaving two sides of a house without siding or plastering, simply boarded up with one thickness of boards. Although my method of packing may be a little more costly and troublesome, I think the complete protection afforded will amply repay.

I agree with Mr. Taylor, that, as a rule, a queen is at her best during the two first years, and it is possible that it might be profitable to replace them at that age. With small brood-nests, however, the difference between old and young queens is not so noticeable. I doubt the advisability of killing two-year-old queens simply to avoid the construction of what little drone comb will be built as the result of their retention.

It does not seem to me that wooden triangular comb-guides, having their lower edges coated with wax, would possess any advantages, not even that of cheapness, over strips of foundation three or four cells in width; but I must admit, that I have given such guides no trial.

One pigeon-hole in my desk is jammed full of letters containing commendations and criticisms of my little book; and you have little idea how much pleasure it gives me to be able to say that not one of these letters contains any thing that has hurt my feelings, while I have been deeply touched at times to witness the exhibition of tact and kindness in making criticism. Of all these letters, the one that contains the most criticisms is from Mr. O. O. Poppleton, of Florida; but the criticisms are all so fair, and touch upon such important points, that I hope I may be excused for giving it in full. I have the permission of the writer to publish it.

Friend Hutchinson:—A copy of your work on "The Production of Comb Honey" is just received. Many thanks for the courtesy. As I judge your object in sending was to invite a friendly criticism, I proceed to give it briefly.

You start out (pages 9-13) with a very decided plea for spring protection. I am no believer in having a hobby, and for ever hammering at it; but if I ever did have one, it was this of spring protection; and there is nothing in your book which so thoroughly meets my entire approbation as does

this part. As long ago as 1881, at the Lexington Convention, I made the statement that, "in my opinion, chaff hives are worth all their extra cost, both in money and labor, if used for no other purpose than as spring protectives," and I reiterated the same in the essay on chaff hives of the next year's convention. I would no more think of trying to keep bees in the short changeable seasons of Northern Iowa or Michigan, without spring protection, than I would with movable-comb hives. This is one thing on which we fully and thoroughly agree, whether we do on any thing else or not.

On page 12 you say: "The saving of stores in cellar wintering will pay for the expense four times over." Aren't you a little careless or wild in this statement? Compared with unprotected outdoor wintering, you are correct; but, so far as my experience goes, the difference in the consumption of honey, between the cellar and a thoroughly well-packed colony out of doors, is too small to be considered. The only reliable statistics I have ever seen on this subject are those published by A. G. Hill, of the *Guide*. If I remember correctly, those tables cover several years' experiments, with an average of, say, 50 to 75 colonies each year, and the average difference between cellar and outdoor wintering is, I think, not far from one pound only. This agrees with my own experience. This, of course, applies only when hives are properly protected, not when the work is only half done. You also say, on the same page, "It is only by the cellar method that the wintering of bees can ever be reduced to a perfect system." This is certainly too sweeping an assertion for any one to make, for it requires just as perfect a system to successfully winter bees out of doors as in the cellar; and such a system is now in use. I will refer you to A. J. Root for an example, but could refer to others who are practically unknown. I do not think that yourself, or any one else who practices your general system of management, will, as a rule, be successful in outdoor wintering; but that is no proof that others in other localities, and with a different management, can not and do not have just as perfect a system of outdoor wintering as any one has of cellar wintering. While you have failed in outdoor wintering, I know of localities where none have succeeded in any other way.

I also take issue with your views regarding stimulative feeding and spreading of the brood, as given on page 14. I do not think that stimulative feeding can be made of value as far north as your locality is and mine was; at least, I tested it thoroughly and could obtain no advantage from it; but spreading of the brood has been of very great service to me. I attribute a large share of my long-continued success in honey-raising to the fact that I have practiced spreading the brood in connection with spring protection. In fact, the first can be successful only when the latter is practiced. Spreading the brood is undoubtedly much more valuable when one is working for extracted honey than when working for comb honey; and, as your work is devoted to the latter only, I do not, of course, differ so much from you as I should had your opinion covered bee-keeping generally instead of only one branch of it.

I can not agree with you, that separators are not a necessity (page 15). Of course, honey can be and has been raised successfully that could be readily crated, but that isn't all that is needed. Appearance is a prime factor in disposing of comb honey, and in that respect honey produced by the aid of separators has an undoubted advantage.

I prefer neither the one-piece nor the four-piece sections. I find that the two-piece, such as G. B. Lewis manufactures, to have the good but none of the bad points of either of the others.

I have never formed any very decided opinion on the main topic of your little book; i. e., so far as the production of comb honey is concerned; but I take a square and decided issue with you in the advice given on page 25, not to give empty combs in the brood-nest when working for extracted honey. The very conditions you describe as the result of hiving on empty combs are the exact ones we have aimed at trying to attain; viz., to have the bees drop brood-rearing, and attend to honey-gathering during the short sharp flows of honey we are apt to have in the extreme North. This is the point which Mr. Doolittle, myself, and others have insisted on when discussing the superiority of Italians over blacks, but which I judge you have either not noticed or not comprehended. I can simply refer you

to pages 120 and 132, *A. B. J.* for 1886, but it has been much more fully treated in other places.

It is very rare indeed, friend H., that I write to any one as this is to you; but the spirit chanced to move, and its promptings were obeyed. Certainly, no harm can be done, while you may be induced to more fully investigate some of these disputed points before a revision of your work is made.

O. O. POPPLETON.

Hawks' Park, Fla., Apr. 1, 1887.

I see this article is already too long, and I must defer the "explanation and defense" of all these points until next issue. W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

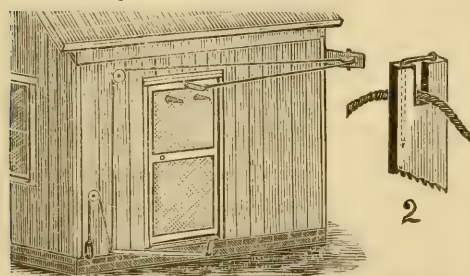
SMALL INVENTIONS.

OUR FRIEND J. A. GREEN GIVES US A FEW VALUABLE SUGGESTIONS.

AS I go about my daily work I am reminded in numerous ways of the debt I owe to my fellow bee-keepers. Many a time a hint given, a method explained, or an improvement suggested by some one in the bee-journals, or at conventions, has been of the greatest service to me. I am not referring to startling theories or revolutionary methods or inventions, but little things that help to smoothe the way and make the lot of the bee-keeper pleasant. A little improvement, into which the author has worked his way so gradually that he does not realize that it is any thing new or particularly valuable, may prove a revolution and a boon to some fellow-worker.

HOW TO MAKE THE SCREEN-DOOR OF A HONEY-HOUSE OPEN BY FOOT-POWER.

I have experienced a great deal of satisfaction this summer in the use of a device which I think would be useful to a great many bee-keepers. Most honey-houses, probably, are provided with screen-doors, closing with springs. If they are not they ought to be. It is unnecessary to mention the advantages of screen-doors, and almost as unnecessary to say that they should close of themselves. A honey-house should be so arranged that it can not be left open for the bees to enter.



GREEN'S DEVICE FOR OPENING SCREEN-DOORS.

In carrying honey or other articles into the honey-house, both hands of the bee-keeper are generally full; and to open an ordinary door he must stop and set something down to get his hands free. This is not only an inconvenience, but it requires some little time, and in the busy season every moment of a bee-keeper's time is valuable. Sometimes, too, his hands are daubed with honey which he does not care to leave on the door-knob as a bait for robbers. All this inconvenience and loss of time is saved by arranging the door so that it can be opened with the foot. I have had such a contrivance on the door of my honey-house this summer, and it has proved a great convenience.

On the top of the outside of your door, nail a piece projecting outward five or six inches. Four or five feet away from the hinge side of the door, nail a board projecting about a foot from the side of the building, and four or five inches higher than the top of the door. In the outer end of this put a small grooved pulley, running horizontally. On the same level, and three feet from the other side of the door, put another grooved pulley, running vertically. A few inches further from the door, and three feet from the ground, put a similar pulley. Now fasten a strong flexible line to the projection on the door, and run it through pulley number one, then back over number two, then down to about two feet from the ground. There fasten it to one end of a light but stiff piece of wood about four feet long. Let the other end of this stick extend back under the door. Bore a hole through this end, and drive a loosely fitting pin through it into the ground. Fasten another piece of line to the free end of the stick; run it over the third pulley and tie a weight to it, heavy enough to raise the stick. Now, by stepping on the stick as you approach the door, the latter is opened; and as you pass through it closes behind you without your being obliged to touch it with your hands, while none of the rigging is in the way or interferes with the ordinary use of the door.

If the door-spring is strong enough, the weight and third pulley may be dispensed with; but with ordinary springs they are necessary to raise the treadle-stick.

AN ADDITION TO THE FOLDING TENT.

Another little convenience I have used this summer is an addition to your folding tent. I was often annoyed by the tent collapsing and blowing over just when I did not want it to. To prevent this I made two light sticks, 53 inches long, and sawed a notch in each end. I then drove a two-inch wire nail into the end on one side of the notch, and bent it over so as to close the notch. One of these sticks was then put at each end of the tent at the bottom, the cord placed in the notch, and the wire nail turned over it, holding it securely. This makes the tent much stiffer and more reliable. When the tent is folded, the sticks can be put inside of it. They add very little to the weight, bulk, or expense of the tent. See Fig. 2.

A SLIGHT DISCREPANCY.

Friend Root, on page 852, last year, at the close of my article, you make the statement that pins, 380 of which cost three cents, are cheaper than $\frac{3}{4}$ -inch wire nails. Your price list says there are 2750 $\frac{3}{4}$ -inch wire nails in a pound. The price is 12 cts. per lb., so that 687 $\frac{1}{2}$ nails may be had for the price of 380 pins, the nails costing scarcely more than half as much as pins. The expense of either, though, for bagging grapes, is insignificant.

Dayton, Ill.

J. A. GREEN.

Friend G., the point you make about the importance of having a door that opens of itself, or, rather, that can be opened by the foot, is an important one. I have, in similar cases, been accustomed to unlatch doors with my foot; but it is a wearying and ungainly thing to do, even if one succeeds. A good many times, the first kick with my toe didn't raise the latch; and sometimes, before I succeeded in getting the door open, I would get red in the face, and come pretty near (?) getting cross. Sometimes I have

managed to release the little finger of my right hand, and get that under the door-latch, and may be in so doing I would drop a comb of honey or push the latch into it. I know what it is to have sticky door-latches and door-knobs, and it always makes me disgusted with myself and things generally. Well, now I want to criticize your machinery a little for opening a door. It is *too much* machinery. I am sure some of our sharp inventors will improve on it right away. Can't some of the devices that have been so frequently figured for operating self-opening gates be brought to bear right here? You see, you have two cords, and three pulleys to be kept from squeaking. I suppose many of you have seen self-opening gates that were operated by fixing a lower hinge at the end of a short arm. Well, now, by making this short arm revolve a quarter of a revolution, the center of gravity is changed so the door swings open of itself, and this same operation raises the latch. The spring to bring the hinge back to its former position would close the door and latch it.

McFADDEN'S LETTER.

SOME SUGGESTIONS ON WINTERING.

I AM sure many of your readers will be interested as I was in the letter of Daniel McFadden. In it there is a whole romance for some one to bring out and color up—not that his statement of the results of “cold storage” is in any way to be questioned. Most assuredly, there is a substantial ground for believing that bees that are kept perfectly quiet consume vastly less honey. Entire darkness, an equable low temperature, and freedom from noise, are evidently the requirements. Here in the Southern-Middle States, where we can winter safely on summer stands, and where bees may fly out every month in the winter, the consumption of honey is often excessive.

Activity involves expenditure among bees, just as it does among the hardy lumbermen in winter, who can eat and digest a quantity of food that would ruin many another less laboriously engaged. Right here we have a case in point. Fourteen colonies in an outlying apiary, and run for extracted honey in 1886, had two full stories, 20 frames (I use the L. frames). I was totally unable to go and extract, and contract them before it became too cold, and they were left with not less than an average of 60 lbs. of stores, some having more. In overhauling them in April, but one colony was found with as much as 5 lbs. of honey, and some were nearly destitute of any honey. But such powerful colonies I never saw so early. No honey had been collected, and very little pollen, for frost had cut the alder and the willow.

In my home apiary of 100 colonies, better protected and shaded, and consequently less active, the consumption was much less, yet by no means so small as many of the records given in cellar wintering.

We are often annoyed by the excessive accumulation of pollen here. This spring, because of the frost just at time of bloom, very little was brought in, and all pollen-laden combs were quickly cleaned out when placed in the hives. J. W. PORTER.

Charlottesville, Va., May 4, 1887.

REBUKING PROFANITY AND OBSCENITY.

THE TESTIMONY OF A BROTHER IN SUCH MATTERS.

BRO. ROOT:—I sincerely sympathize with you in your surprise at the state of morals existing in a neighboring State. While I regret that, while you *hesitated* about rebuking such profanity and obscenity, I have no doubt but that it was the evil one that furnished the apologies for delay. In my own experience for many years, I have always tried to reprove whenever I have heard such talk, on the street, in stores, or at depots, on the spot, and to do it in such a manner as to express how my feelings were pained by such language, and I have as yet never been insulted for so doing; and I believe that, if you had done so on hearing the first expression, you would have succeeded in putting an effectual stop to it for that time. Here let me add my conviction that they, when they perceived that you were listening, continued the discourse, and added to its degrading depravity and blasphemy—it may have been on purpose to torment you. I have heard of just such cases before. There is one command that I think is not sufficiently regarded by Christians nowadays in Lev. 19: 17, and which, if we all tried more implicitly to obey, our heavenly Father would give us the words and right spirit to rebuke sin; then would be verified his promise in Lev. 26: 3-8. May he help us to be “wise as serpents,” is the prayer of yours most truly. A. H. VANDOREN.

Mons, Bedford Co., Va., May 8, 1887.

Thanks, friend V. I, too, have never yet received any abusive language when I have tried to rebuke such things, unless I except one man who excused himself for swearing by saying he supposed this was a “free country.” But I am afraid that Christ's spirit was not in my heart at the time I reprov'd him. Your testimony encourages and strengthens me, and I thank you for the texts you quote.

As it may trouble some of our friends to hunt up their Bibles and find the references I give them here.

Thou shalt not hate thy brother in thine heart; thou shalt in any wise rebuke thy neighbor, and not bear sin because of him.—LEV. 19: 17 (New Revision).

If ye walk in my statutes and keep my commandments, and do them; then I will give you rain in due season, and the land shall yield her increase, and the trees of the field shall yield their fruit. And your threshing shall reach unto the vintage, and the vintage shall reach unto the sowing time: and ye shall eat your bread to the full, and dwell in your land safely. And I will give peace in the land, and ye shall lie down, and none shall make you afraid; and I will rid evil beasts out of the land, neither shall the sword go through your land. And ye shall chase your enemies, and they shall fall before you by the sword. And five of you shall chase a hundred, and a hundred of you shall put ten thousand to flight: and your enemies shall fall before you by the sword.—LEV. 26: 3-8.

There, brothers and sisters, is not that promise strong enough? and I have not a particle of doubt but that it will be fulfilled to the very letter. If we push forward with Christ's spirit in our hearts in this matter of rebuking such talk, verily shall it prove true that five of us shall chase a hundred, and a hundred shall put ten thousand to flight.

HAND-MADE HIVES, ETC.

HOW TO MAKE A SAW-TABLE OUT OF AN OLD SEWING-MACHINE.

FOR the benefit of your A B C class I will give my four-years' experience in making every thing I use in my apiary. Some of these A B C scholars, who doubtless, like myself, have more time than money to spend with bees, and can not afford the expense of a \$25 or \$50 order (including a heavy freight bill) for a small apiary of some 15 or 20 hives, perhaps may be trying to manufacture their own hives, frames, crates, etc., with hand-tools.

For an L. hive I make a plain box of right dimensions, with a rabbet $\frac{3}{4}$ inch cut on the upper inside edge of each end board. I also cut a $\frac{3}{8}$ -inch slot in the lower edge of one of the end boards for an entrance, and nail on a tight bottom-board (which I much prefer). For upper stories I use these same plain boxes without bottom. The end boards can be cut in a miter-box, and have very true and accurate work. I use inch pine boards dressed on the heart side, and nail well. For covers I use a plain board cleated at each end, and laid directly on the hive.

For section crates, I make a plain box (sides of $\frac{1}{2}$ -inch stuff), with a strip of tin nailed on each lower edge of the ends, to support the wide frames one tier of sections high. I make all my frames for brood and extracting purposes from common lath, ripping them through the center. This gives a nearly $\frac{3}{4}$ -inch frame (I use the Heddon reversible frame); and after nailing the end bars to the top and bottom bars with the additional top bar, I find they are very stout and easily manipulated. After once reversing they need no wiring, as I tested by having to move my whole apiary a distance of 25 miles over a rough road the past winter, with only two heavy combs of honey breaking. I will here say, that I much value this reversing system for perfect combs. For nailing frames, the Root wire nails are indispensable. Until the present season I have cut and made all my bee-fixtures with hand tools, such as saw, plane, square, and hammer. I can say to your ambitious A B C youth, you can make all you need, without machinery, even if you have but little knowledge of tools, for I am but a youth, and never handled tools until I began making hives and fixtures for my own use.

A HOME-MADE SAW-MACHINE.

I will speak of a home-made sawing-machine which I rigged up the present season. This will also answer friend Pouders' query on page 215. I have an old cast-away Wheeler & Wilson sewing-machine table, with treadle, given me by a neighbor. To the shaft I adjusted a twenty-inch band-wheel, taken from an old cider-mill. With a \$2.50 Root mandrel, a 6-inch saw, and this machine, I cut all my lath for frames, and make my honey-crates. I am so well pleased with such accurate work I would not part with it on reasonable terms. Tell friend Pouders that, in place of the treadle formerly used, use a stout 4-ft. board with one end on the floor, the other attached to the shaft by means of a strap.

4—W. H. LAWS, 25—37.

Lavaca, Ark., May 2, 1887.

Very good, friend L. The fact that you have used these things successfully is an unanswerable argument, and we heartily commend your energy and industry.

OUR P. BENSON LETTER.

THE SWARM APPEL TREE.

WUZ a maden fare
With golden hair
Whitch sot thare
In the place where—they was a big stone.
She sot onto the stone. Madly the wild winds
tost her flowing lox, while the gentle zeffers softly
fand her peach-blow cheeks. She wuz a chankin
down a appel.

Twus at the witchin our of nit & oll wuz cam. Oll wuz still. Oll wuz sereen. She took anuther bite of the appel and a seed fell out. Softly and thotlessly in the still darkness, mayhap unkonsush of the grate futur before it, the little seed meandered on its wa to the ground. That thair seed groad up into a big appel tree.



THAT APPEL TREE.

Years passed, time went on, & 1 da, it was Joon 10, a swarm cum out. The swarm lit onto that identikile appel tree. The swarm and the appel tree boath belonged to me, whitch I am P. Benson, A. B. S. I spose you noad who I was without my tellin you, but it's no harm to maik sure. Well that swarm was a big 1. It wuz enormuss. I never see sitch a big swarm on enny other tree. That was a Toosday. I woont be sure now, but I think it was a Toosday. I like to tell a thing jist as it is. Well, a Monday next following, a swarm cum out of the same hive and lit onto the same tree. It was a big swarm. I never see a tree have 2 sitch big swarms. Then a Wensday a swarm cum out, also a Thursday. I never see a tree befour git 4 sitch fine swarms onto it: oll from the same hive. A Friday & a Saterdag cum 2 more swarms, makin (6) six swarms whitch that thair tree fetched out from the same hive. The equill of that tree for gettin fine swarms and plenty of them izzent to be found. It haint enny equill.

That fall in the otum of the year we gethered off that tree sixteen—I disremember jist now if it was barrels or bushels, but we woont quori about that, weal call it barrels,—sixteen barrels of as nice appels as you ever sot ize on.

The benefit of sitch a tree is eesy to see. Suppose a man or even a woman or a invalid, starts with 40 hives and gits one of these trees. Eech hive will make 6 swarms and countin the old 1, that makes 7. So if he starts with 40 he will hev

in 1 year.....	280
in 2 year.....	1,960
in 3 year.....	13,720
in 4 year.....	96,040

But mebbe the 4th year wood be extra good, sum yeers is better then uthers, in whitch case instead of 96 thousand it mite be 100 thousand. Weal call it a hundred thousand. Now let him sell these at \$10 apeace & ittlet make a cool million dollars.

The price of seeds of this appel tree is 5 sents eech; 3 for a dime. Cash must accompeny the order, or a draught on Noo York. P. BENSON.

Apiculturalist B. S.

GROWLERY.

THE following comes to us on a postal. As it was written in German, the clerk who opens the mails has translated it. I mention this, because friend S. may claim he did not mean it as rough as it sounds below, but I believe our translator has aimed to put it mildly rather than otherwise.

If you had used me right you would have had \$50.00 worth of trade from me this season. The wax-extractor leaked, and I lost 5 lbs. of wax, and had to have it fixed. You do not care whether your goods come early or late. You could have helped it, if you wanted to, so that my goods would have gone right through. If you have your money that is all you care for. I have lost all confidence in you.

P. SCHONS.

Kellogg, Minn., Apr. 24, 1887.

On reading the above I asked for the previous correspondence, and I can not see that we failed to comply with any request made by friend S., except that he directed us to mark 6000 sections, one smoker, foundation-fastener, wax-extractor, and some wire nails, as perishable. He evidently wanted them marked "perishable," so the railroad companies would hurry them through. I presume the shipping clerks disobeyed orders here, and I certainly should have told them to do so had the matter been referred to me. The above goods can not in any sense be called perishable, and we can not consent to anything that sounds even like untruthfulness, even if we do lose custom thereby. As it is customary to so mark nursery stock, fruits, and vegetables, where they are risked to go by freight, expecting the railroad officials to take extra pains on that account to hurry them through, an extra price has to be paid for this class of freight. Now, some might decide that, if the owner is willing to pay the extra transportation charges, he has a right to mark a box of sections "perishable," if he choose. There may be a difference of opinion in regard to the matter, but I should not want to do it any more than I would want to mark honey as molasses, in order to secure a lower rate of freight. If I can not do business successfully, and mark the contents of a package exactly what it is, then I do not want to do business. Is not this the better way, friend S.?

In regard to the wax-extractor leaking, I can not quite understand the matter. The wax is expected to run right out of any wax-extractor, just as fast as it gets melted. If you lost five pounds of wax because of any blunder or remissness on the part of our tinnerns, I will pay for it; and I beg to assure you, dear friend S., that we try to use all of our customers right. We do care very much whether the goods come early or late, and we will do almost any thing in the world we can do to expedite business, consistent with strict honesty and integrity. I am sorry if you have lost confidence in us; and I hope, after the above explanation, you will reconsider your decision.

A LETTER FROM SOUTH AUSTRALIA.

THE HONEY SEASON THERE FROM FOUR TO FIVE MONTHS LONG; 500 LBS. PER COLONY.

AMONGST other things to which particular attention has been called of late, the bar-frame hive has had a place. South Australia produces a heavy crop of honey, and under the old box system has been noted for years past for the quantity and quality of honey produced; but now since the A B C of Bee Culture has become a household book, the quantity of honey produced threatens to swamp the market. But this, I think, will work its own cure by exterminating those producers who will not take the trouble to put their goods in the market in good shape. We have a very heavy honey-flow this year; and as the season lasts for about four or five months you may imagine what a harvest might be gathered with the best appliance and good bees. We have no winter here—only a month or two of rough and rainy weather, so that in settled and cultivated parts bees can gather all the year; consequently the brood-nest is always pretty full. In country parts, the honey-harvest is gathered from the various species of eucalyptus, some of which bloom yearly, but the bulk bi-yearly. The red gum is a wonderful producer, and, being a very large tree, a single tree will produce many cwt. of honey, so that a strong colony of bees will gather, when the extractor is kept going, 400 or 500 lbs. in a season.

THE INFERIORITY OF BLACKS TO ITALIANS.

As this refers to the black German bee, we may look for still better results as the Italian and Cyprian blood asserts itself. I am running about 80 colonies this season, a few imported queens, a large proportion of hybrids, and a few blacks; and I would just like to say that I find the blacks are nowhere beside the Ligurian or hybrid in the quantity of honey gathered, or in general progress. They are very easily discouraged, and, I think, lazy withal. I expect about two to three tons of sections this season, of a quality which leaves nothing to be desired. I am just beginning to take off a few, and expect to be at that pleasant occupation until the end of April.

HOT WEATHER.

The weather at present is very hot. Last week we had it up to 112° right in the shade. A good many poor bees suffered in consequence, where not properly ventilated or shaded, by the melting of the combs. I am sorry to say I was caught napping myself by having some good queens in nucleus boxes with small entrances, and I lost six in consequence—one imported queen and four purely fertilized of my own rearing. None of the full colonies suffered, as I wedged up the bodies of the hive to insure plenty of ventilation.

By the aid of a gas-engine, 3½ H. P., I have turned out for others about 3000 hives and appliances. In hive-making I adopted the same principle of fitting as the four-piece sections. I had a machine made to my own order which takes out a row of ¼ dovetails. It works speedily and well, and gives, when knocked together and nailed both ways, a strong hive-body, as well as insuring each part coming up square into place. The Simplicity has been pretty generally adopted in these colonies, and I think meets all requirements.

PRICE OF HONEY IN AUSTRALIA.

At the present time, honey is bringing here,

wholesale, 3 pence for extracted and 6 for 1-lb. sections, which will pay well if a little attention is given to the apiary.

FOUL BROOD AND THE PHENOL CURE.

Our great trouble is foul brood. We are well acquainted with all the different phases and descriptions given from time to time in the bee-journals. For my own part I ceased to dread it after I got hold of phenol cure—not by feeding, for that would be impossible, unless by shutting up the bees—but by spraying bees and brood with a weak solution—1 in 400. I find that two or three sprayings is quite sufficient to eradicate the disease. The disease is so widespread that one can never be quite safe for any length of time. Some careless or ignorant neighbor may at any time communicate the disease. With no winter to contend with, we should be overrun or overwarmed with bees if nature did not put some check upon increase.

HOW TO GET RID OF SMALL BLACK ANTS.

I have been terribly troubled with small black ants—so bad that I could not keep any thing like a nucleus; in fact, they would put four or five frames of bees out of doors. After taking all manner of trouble to try to keep them off the hives I have set to work to try to poison them. To be safe in dealing with such dangerous stuff, I made 50 small feeders with the section groover, on the same principle as the Simplicity feeder, and then cut a piece of board large enough to cover the feeder. This piece of board was screwed on top by a single screw in the middle, but with a $\frac{1}{2}$ -inch strip of wood between at each end, so as to leave room for the ants to run in. When charged with poisoned honey in the grooves, the top board was securely screwed on, and one slipped under each hive where the trouble was. Judging from the attention they were receiving an hour or so afterward there should be a good many ants less in a few days. I think this will meet the trouble, and it is inexpensive.

For getting rid of large ants which congregate in colonies, I have found nothing so speedy as breaking up the ground, and then sinking a few earthenware basins so that the rims are flush with the surface. A little fire-wood ashes sprinkled into the basin makes the sides so slippery that no ant that once enters ever returns. A day or two will generally suffice to trap the greater part of the ants. Anxiety of mind to climb up the side of the basin will generally bring about death; if not, a little boiling water will. I have found the plan answer where every thing else failed. It is, like the other, inexpensive (if you borrow the basins and don't break any).

I should like to add my testimonial to the many you constantly receive, to the pleasure which the perusal of GLEANINGS gives; and not only pleasure, but profit—not profit measured by dollars, but by a standard which teaches us to “lay up treasure in heaven.”

THE TOBACCO COLUMN.

I am greatly interested in the smoker column. Thankful I am, after years of slavery, to be delivered from the bondage of a pipe, and to be free from a habit which was offensive to others, and miserably mean and selfish at the same time. I am glad to see so many others laying aside this filthy habit. Three years since, I laid the pipe aside, and intend never to touch it again, although so strong are the old habits that the very writing about the subject brings back the old desire to some extent; but I don't fear the enemy.

THAT JUBILEE EXHIBITION.

As probably you are aware, we are holding a jubilee exhibition this year which promises to be a grand success. I hope you will be represented. Victoria follows suit next year with a colonial centennial. Victoria is a wonderfully progressive colony. Melbourne, the capital (with which we are this month connected by rail) promises to be a second New York. We sadly lack a customs federation. We have different tariffs, and shut out one another's products. For instance, we can here produce fruit to any extent; but Victoria says, “We won't have your fruit, but will grow our own, even if not of so good a quality,” and so taxes imported fruit 2 pence. The same way with honey. I am offered in Melbourne 9 pence for comb, but would have to pay 2 pence for all that crosses the border. We are slowly, I think, working toward a federation of the Australian colonies, but we are dreadfully jealous of each other. LEONARD T. CHAMBERS.

Adelaide, South Australia, Apr. 4, 1887.

I am very glad, friend C., to get so good a report from Australia. Four hundred to five hundred pounds per colony is indeed wonderful, if you have many colonies that do that. Are you sure a single tree of any kind will produce as much as even 100 lbs. of honey?—Your testimony in regard to the common bees compared with Italians seems to be about the general verdict.—We have often thought of a hive-body to put together like a four-piece section; but unless kept well painted it will allow the water to soak into the dovetails, and hence we decided we should not like it, and the matter was dropped. I am glad to hear you also give a good report of the phenol cure.

BUMBLE-BEES.

ALSO A GOOD RECOMMENDATION FOR THE NEW BARNES COMBINED SAW.

WHY don't Prof. Cook, G. M. Doolittle, and others, in writing about bumble-bees, tell that the drones, or stingless bees, have a white, or rather yellow spot, on the head, and can thus be easily distinguished from the others. These are the fellows that sit on a mullein-top, as Mr. Doolittle says, and seem ready to fight any thing that comes their way. I have surprised people more than once by catching one of these white heads, as we call them, and when a boy, which was only a short time ago, my brothers and I used to catch the white heads and try to get other boys to do the same, but not tell them how to distinguish the stingless bees, and in that way have the laugh on them. But I believe we never found many who were willing to try the experiment. If I remember correctly, I have found these same white heads hibernating in red-cedar posts when split open in the spring. However, it was so long ago that I am not quite sure. Whenever you see a bumble-bee with a square yellow spot between the eyes, and always ready for fight, you need not fear him.

We have now owned a Barnes new combined foot-power saw for over a year, and are so well pleased with it that we feel like telling the readers of GLEANINGS, who may not be familiar with the machine, what we think of it. Our shop is in an unfinished house, and therefore was too cold to work

in during winter; but since the weather has begun to moderate we have been at work a part of the time. We have sawed out about 40 Simplicity bodies and covers, 10 nucleus hives, 180 metal-cornered brood-frames, dovetailed; also ten 2½-story hives. We have now 40 more hives in construction, and enough lumber grooved for ripping into frame-stuff which will make four or five hundred frames.

We have not kept any account of the time we worked; but to tell what the machine will do, we gave it a trial a few days ago. My brother held the watch while I ran the saw, and I ripped ten feet and nine inches of ¾-inch pine in one minute. The manufacturers of the saws claim that it will rip eight feet of one-inch lumber per minute; but if I have calculated correctly, what I cut would be equal to 9 13-32 ft., being almost 1½ feet more than is claimed for it. We would not take twice what ours cost us if we could not get another one. During the time we have had the machine it has been necessary for us to order some parts from the manufacturers, and the orders, though very small, received the most prompt attention, and we think any one having occasion to deal with the above firm will find them very pleasant men.

POLLEN THE SIXTH DAY OF MARCH IN CENTRAL MISSOURI.

Our bees gathered pollen on and perhaps before March 6th, but the sixth was the first we noticed. Since that time there has been some fine weather and they worked quite lively; but for the last few days it has been rather cool and windy. We went into winter with 12 colonies; bought three during the winter, one of which we lost; also one of our own died, leaving us 13. This spring we bought 18, and in transferring four of them we found one of them queenless. This leaves us 30 colonies, 16 of which have to be transferred. S. E. MILLER.

Bluffton, Montgomery Co., Mo.

BUMBLE-BEES, AGAIN.

PROF. COOK'S HEARTY INDORSEMENT OF DOOLITTLE'S OBSERVATIONS.

MR. EDITOR:—You do not know with what astonishment and pleasure I read Mr. Doolittle's article on bumble-bees, page 302, GLEANINGS. I am free to say, that not one man in 10,000, with no favoring circumstance to guide his observations and study, would show such accurate knowledge and observation as he evinces. It is a significant fact that has often interested me, that men like Messrs. Doolittle and Heddon, men who are naturalists by nature, are almost sure to make a striking success of whatever they undertake, unless, forsooth, they are naturally so indolent, and wanting in energy and push, that there is no foothold in their lives for success. This is why I would incite in the mind of every child a love of nature and its study. It is an easy task to stimulate such a love; and it serves wonderfully to aid in the struggle for success in this practical age; and, best, by leading the mind and thought toward good things it helps to fortify one against the evil that is in the world. What a rich mine of pleasure our good friend Doolittle has found in his close study of every thing about him! What a wonderful aid this cultivated observation has been to him in his bee-keeping life! and through him it has blessed every bee-keeper in the

land. What helps any honest laborer in any useful occupation, blesses the world and rejoices the All Father.

Yes, I feel sure that the queen bumble-bee hibernates. Deep in the ground or in some other protected spot she survives the winter, and awakens with the lilacs and apple-blossoms, to her important work.

Again, my observation agrees with that of our friend, in the statement that the egg is placed in the pollen mass. The cell is formed by the food-taking of the hungry, rapidly growing larvæ. Afterward this cell is waxed and is made a honey-cell. This is what friend Doolittle and I used to pilfer from the poor bumble-bees. Often we learned that the curved cimeter of the bumble-bees is well prepared to protect their precious stores, and I am not the one to say that it did not serve us right.

I am not prepared to say positively that there are not large and small workers, but I am doubtful. Several times I have chloroformed whole nests, and examined every bee, only to find workers, queens, and drones. The young unimpregnated queens were smaller than the old queen, and larger than the workers. We will examine further, friend Doolittle. You know that prince of observers and naturalists, Huber, said there were two kinds of worker honey-bees. We do not think so now. Careful observation and examination make me quite sure, in some cases at least, the bees in the bumble-bees' nest correspond exactly in sex and kind with our honey-bees. I wish our friend would send me his six species next year. I will report the names in GLEANINGS.

Our students have often asked me about the shade-bees. Every bee-keeper would understand at once why such bees would never sting. Our friends clubbing the shade-bees with dirt-clods, as many a boy has thrown a stone to see his sportive dog run for it, is as interesting as it is exceptional. What other reader of GLEANINGS ever did that? And who have noticed the swarming-out over nests in August? How I wish every boy in the country could have the privilege of a walk once a week with our friend Doolittle, through meadow and woodland! What a new world this would be to them! Add to this the weekly visits of the *Youth's Companion*, and how few of our boys would go to the bad.

As to close in-breeding. I do not believe nature invariably abhors close in-breeding. She abhors imperfections; and if such are closely inbred she exterminates the whole race. Many plants have to breed close, and thrive at the same time. Bates and Collins originated our grandest strains of short-horns by just this close in-breeding. It is the most potent instrument in the hands of our best breeders to-day. With the bumble-bees, what a gain, in the way of security from danger, is this habit!—such a gain that it overrides any disadvantages by way of close in-breeding in importance. The man who took the leading premium at our last State Fair had bred his short-horns right in for three generations. I know of another excellent breeder who did the same with marked success for a much longer period. I should much prefer to breed in closely with good animals, than to use a poor out-cross. A. J. COOK.

Agricultural College, Mich., Apr. 26, 1887.

I am very glad indeed, friend C., to hear you speak such kind words of our old friend.

One of the things that first struck me in his early writings was his habit of close, keen observation, and the enjoyment he seems to take in digging out Nature's secrets. Will the friends now pardon me for saying that we have now devoted as much space to bumble-bees as we can spare? The honey season is upon us, and more important matters are pressing.

MORE ABOUT OUR CELLARS.

TERRY ON THEIR CONSTRUCTION, VENTILATION, AND TEMPERATURE.

FRIEND ROOT:—A correspondent thinks I was somewhat mistaken on one point, in a late letter about our cellars. I said, in substance, that when the burning fire took air from the rooms, more would have to come in from some quarter, and that, under ordinary conditions, much would come from the cellar, right through the loose inch floor-boards. Also that the tighter the doors and windows were made with weather-strips, etc., the more air would be drawn from the cellar. Now, our friend thinks that, if the doors and windows of the cellar were shut up tight, as they are during the cold weather, little or no air could be drawn into the living-rooms, as there would be little chance for more to be drawn into the cellar to fill its place. This depends largely on circumstances. If the cellar wall was built of hollow bricks, and these bricks were made of sewer-pipe clay, and glazed, and the doors and windows shut very tightly, it would not be an easy matter to draw much air into the cellar; still, there would always be some—enough so that it would be wise to plaster the cellar overhead and keep it as pure as possible.

The writer's cellar wall is made of these hollow bricks. But how many cellar walls do we find built in this way? A very great many are built of common sandstone, through which the air will go almost as readily as through an inch board. Air doesn't come through the mortar on the sides of the living-rooms readily; and if the doors and windows are made very close-fitting, you may be sure that, with the ordinary loose inch floor and sandstone cellar-walls, a large part of your winter supply of air comes to you by way of the cellar. This is bad enough; but what shall we say when a bank of manure is put up around the cellar-wall to keep the cellar from freezing? I wonder how many who use manure for banking ever thought that their breathing-air in the house would be tainted all winter with that manure. Perhaps not one; but still this would be found to be the case as a rule. So we want to be careful and have the outside of our cellar wall clean as well as the inside.

The writer rode by a house thus banked up, last winter. A hearse and a number of teams in the yard looked as though there had been a death there lately. I could not help but wonder if the condition of the air they had been breathing had not hurried some loved one away sooner than was necessary. As one goes to the North he sees manure used to bank up cellars much more than in this latitude. It is handy, as every one, almost, has plenty of it; but certainly no thoughtful husband would use it outside of a sandstone wall, where the dear ones lived in rooms over the cellar. Sawdust or even dirt would be far better. But in our latitude there

is no possible need of any banking. It looks badly at the best. A banked-up cellar is very apt to be kept too warm for the good of the vegetables. Hang two thermometers up in the cellar at the coldest points. Early in the winter leave the windows open on the south and east sides, until you get the temperature down to 35° at least. When there comes a cold night, and the thermometers show a temperature close to freezing, light an oil-stove for an hour or two, warming it just barely enough to tide you over the cold snap.

We never bank up our door or windows in the least, and some 18 inches of wall are exposed all around the house; but we never have anything freeze. I doubt whether we burned more than 10 cents' worth of oil during last winter. Perhaps half a dozen times the stove had to be lighted for a short time. We have plenty of choice eating-apples yet. Very few rotted. I know many farmers who kept their cellars banked up too warm, so as to have them able to stand a cold snap. Their apples were all rotten long ago. Some of them have sprouted their potatoes already. A thermometer and oil-stove, and a little thoughtful labor, would change all this. And then the good wife would find the oil-stove so nice to heat the irons or boil the tea-kettle some hot day in the summer. Even if one does bank up the cellar, the thermometer would show him, oftentimes, that he was keeping it much warmer than was necessary. A thermometer costs but a few cents; but I venture to say, not one farmer in ten ever keeps one in his cellar.

A cellar kept down near freezing, all winter, would make the living-rooms above colder, with only a thin board floor between; but plaster it overhead and put building-paper under carpets (the best way to keep impure air from coming up), and you will not be troubled with cold floors.

A vegetable-cellar somewhere else than under the dwelling-house would be better, perhaps; but I have been trying to show in my two letters how we could take cellars as we find them, and used as they are used, and so manage them as to run almost no risk to our health and still keep our vegetables in the best possible condition.

I am afraid you will say that I stopped too quick again, so I will add that to-day, May 2, we have bushels of Peck's Pleasant apples, not a late-keeping variety by any means, that are sound and nice to eat, in our cellar. And we have 50 bushels of potatoes for seed that have not sprouted to speak of, and we hope to be able to keep them back another week or ten days. Our earliest potatoes have sprouted a little. As a rule we can keep them back until this date.

Friend Root, when I wrote that letter that made you "almost provoked because I stopped so suddenly," I looked up at the close and saw how many pages I had written, and thought of what you said in GLEANINGS, not long ago, that friends must make their letters short, or you would have to cut them down, etc., and I just wound right up as quickly as possible. I believe you were right too. We are not heard for our much speaking. This reminds me of a story my father used to tell:

When he was in the theological seminary the president once told the young ministers that if they should take a hatchel (the younger readers of GLEANINGS will have to ask their grandparents what this is), and stuff it full of tow, cramming in all they possibly could everywhere, they could

then sit on it and ride to Boston; it would make a comfortable seat. "But," he says, "young men, if you should pull the tow all out you would find it a very pointed seat. Now leave the tow out of your sermons. Let them just be full of clean sharp points, that can not fail to prick the hearers."

We do not want too much tow in our articles either, so that, when one gets through reading, the points will have been all smothered in his mind by the mass of unnecessary words. T. B. TERRY.

Hudson, Ohio, May 2, 1887.

Friend Terry, you have given us some very important suggestions, and I have been for a long time thinking of the importance of keeping our cellars, especially our vegetable-cellars, as cold as possible and still avoid freezing. A good deal of attention has been given to cold-storage rooms, that cost ever so much money; but I believe it has been decided that fruit and vegetables of many kinds can be kept almost as well on the plan you give—that is, keeping the air in the cellar cold by opening and closing the windows at the proper time. I can readily understand how the coal-oil stove would be very much better, and I think cheaper too, than making our cellars too warm just because of the rarely occurring severe days and nights that might let the frost in. This subject is intensely interesting to me; but perhaps I shall have to set an example too, by being brief. But I want to say, before closing, that I do not believe that a single one of the 7000 subscribers to GLEANINGS has thought that *you*, friend Terry, had even once written at too great length. Your talk concerns the homes we live in, and this all-important matter of the health of the inmates; and the most of what you give us has never appeared elsewhere.

ABOUT SPREADING BROOD.

FRIEND DOOLITTLE TELLS US HOW TO DO IT AND HOW NOT TO DO IT.

FEARING that all do not understand just how to manage the spreading of brood so as to have it an advantage rather than a disadvantage, I thought a few words at this time from one who has practiced it for the past 15 years might not be amiss. Some think that at best there is no gain in such an operation, or, at least, not a gain proportionate to the labor involved; but from several tests made by leaving whole rows of hives through the bee-yard undisturbed, while a row alongside had the brood spread as about to be given, I find those manipulated gave results above the others more than double enough to pay for the extra labor. The trouble with most of those who try the plan for the first time is, that they begin to manipulate the brood too early. There can be nothing gained where there are three or four combs one-fourth full of brood, by spreading them apart and putting an empty comb between; for by so doing we simply spread the brood out in an unnatural position, and work on the plan of scattering the heat instead of concentrating it. Besides, as long as this state of affairs exists they have already got brood in more combs than they should have; for all will see that, if all this brood were put in one comb, and that comb placed in the center of a chaff hive made for only one

comb, the bees that hardly covered it before could hardly crowd into the space it now occupies.

To get at what I wish to illustrate, let us suppose that we could get that ordinary colony of bees with its brood in four combs as above, all on one comb, and no room for the bees except in this space, it will be seen that quite a proportion of the bees would be obliged to cluster outside. To obviate this outside clustering we will enlarge our hives so as to take one more comb, which comb is put in. Now having our heat and bees condensed to the right proportion, we would find that the queen would lay in this comb at the same rate she would in July, filling it with eggs in three or four days; while, had we not done this, the brood in the four combs with a whole hive to carry off the radiating heat would not have advanced to the amount of one-sixth of a frame. In a few days, more young bees from our first frame have hatched to such an extent that they are again crowding out at the entrance, when we once more enlarge the hive and put in another comb (putting it in the center this time), which is filled as quickly as before, and so we keep on, till one hive is enlarged to the breeding capacity of the queen. Does any one doubt but that we shall have a hive full of brood and bees long before we should if nothing had been done? If such doubt exists, an experiment or two along that line will convince any.

Well, now, to practical work. As soon in spring as the first pollen appears, shut the colony on to the number of combs containing brood, using something to confine the heat as much as possible for a division-board. If these combs of brood do not contain honey enough, use a feeder such as I described a few months back for that division-board, and feed, or leave combs of honey beyond the board so the bees can have access to it. Now leave them till the two central combs have brood clear down to the bottom outside corners of the frames; for manipulation previous to this would not help a bit, as they already have all the chance for spreading their own brood that is needed. As soon as you find the two central combs thus filled, reverse the brood-nest, by which I mean put these two central combs of brood on the outside, and those outside in the center, when, in a very few days, we shall have our combs and colony in just the shape of the supposed colony we spoke of above, and are to proceed in the future on the same plan. The main idea is, in the concentrating of the heat, and that in such a way that the young brood and eggs are always in the warmest part, rather than all around on the outside, or in the coolest part, as they are in the manipulated hive. It will also be seen, that, if we work as above, there is not the least shadow of a chance of chilling the brood; for room is given only as the bees need it. The spreading of the brood in a full hive where there is brood in from four to six frames, and those only from $\frac{1}{4}$ to $\frac{3}{4}$ full, is only labor thrown away, and a risky operation besides; for the bees have already too much room; but the concentration of heat, and the management as given in this article, is a sure road to success; or, at least, so says an experience of a dozen or more years.

Borodino, N. Y., Apr., 1887. G. M. DOOLITTLE.

I quite agree with you, friend D., only I do not believe I would want to undertake crowding the bees on to one frame very early in the season. I have done it in the

hot summer months with good success, but it always seemed as if they needed about two combs to make a start, and even three seems a good deal better. Perhaps the L. frame may work a little differently from the one you use; but I believe if I were commencing the first of April to contract, I would not reduce any of them to less than three combs. If they could not fill the space I would let them manage their own way until they could; and when the little colony gets so strong as to crowd outdoors during very warm weather in the month of April, I would be a little slow about giving them another comb. A severe frost may not only crowd them all into the hive, but perhaps so near the center of their two or three combs it might leave some brood exposed. With *good packing* about three combs, there ought not to be much danger.

There is another point I feel a little undecided about: When bees have a little unsealed larvæ on one side of the comb, and cells filled with pollen right opposite on the next comb, is it ever advisable to move these combs so as to upset the arrangement? I have watched it quite a little, and it always seemed to me as if it were asking your wife to get breakfast as quick as she does ordinarily, with the cook-stove put in the cellar and the dining-table upstairs. She usually wants the cook-stove not only on the same floor, but pretty near by the breakfast-table; and the bees plainly tell us they want newly gathered pollen about as near the unsealed larvæ as they can possibly place it. Now, if you will take an outside comb and put it in the center, a good deal of hard labor for the little chaps is caused by the transposing and upsetting. The children will wait to be fed, while the breakfast-table is away around on the other side of the comb—may be a whole comb intervening between the food and little ones. I know they will change things about and get things handy in a pretty short space of time; but I have thought that colonies that were not mixed up in this way made the best bees.

T. P. ANDREWS' HIVE-CART.

HOW TO MAKE IT.

THE cart I use in my apiary (see cut, Jan. 1st GLEANINGS) was made according to directions given me by a bee-keeping friend by the name of S. Smith, of Mattoon, Ill. The wheels are 28 inches high, and are made of $\frac{3}{8}$ -inch surfaced pine lumber which should be as much as 16 or 18 inches wide. Each wheel consists of three disks of lumber; the central and largest one is 28 inches in diameter, made of two widths of lumber. The others are 12 and 20 inches respectively. These two smaller disks are beveled around their circumference to a feather edge, and securely nailed, one on each side of the large disk. The grain of the smaller disks crosses that of the large one, thus giving it strength and thickness enough at the center to hold the boxing in very firmly. This consists of a piece of $\frac{3}{8}$ -inch gas-pipe, $3\frac{1}{4}$ inches long. The axle proper is made of a piece of iron rod, a trifle smaller than the bore of the gas-pipe, into which the axle is slipped, and around which the box revolves. Flanges are welded on the axles

at the inner ends of the boxes. Holes are punched at the outer ends of the axles, and linchpins hold the wheels on.

The body of my cart is also made of pine lumber. It is about 4 feet long and about 20 inches wide. It is made to hold three hives or comb-boxes at a load. The depth of the body is six inches. The cut is not entirely correct. The cart is not wide enough to take in two hives side by side, but is *long* enough to take in three hives. The side-boards do not taper out into handles like a wheelbarrow, but are cut off on a bevel, and are connected by a cross-piece that can be grasped by one or both hands. The axle is made as short as will permit the wheels to turn freely without rubbing against the side-boards. A three-inch cross-piece connects the two side-boards. To this the iron axle is fastened by two carriage-bolts, the heads of which have been cut off and the ends bent into hooks which grasp around the axle. The cart should be supported in a horizontal position by two legs like those of a wheelbarrow placed near the front end. The lumber and iron work of the cart cost about one dollar, and is, in my opinion much, more convenient in the apiary than a wheelbarrow. It is narrow enough to pass through an ordinary door, so that it can be drawn with its load of combs into the honey-house.

Farina, Ill.

T. P. ANDREWS.

Thank you, friend A. And so it transpires that the home-made cart was an "iron ex," after all. Your plan of construction is quite ingenious; and if you draw the cart in when it rains, those pine wheels will last a good many years, and do much service.

A WELL-SPENT DOLLAR.

A TRUE STORY, WITH A MORAL TO IT FOR THE BOYS.

MANY years ago there lived in this county a farmer by the name of Mr. W., who had, among other children, a son about fifteen years of age, by the name of Thomas. He also owned a negro boy of about the same age as Thomas; and as these boys were thus thrown together they naturally became very intimate. Among other diversions they learned to play at cards some time before Mr. W.'s death, which event left them as the only prospective support for the family.

When the season for farming was at hand, the neighbors began to watch to see how the boys would work. It was soon apparent that something was wrong, and one old neighbor by the name of Mr. R. made special search to find the trouble. He was not long in tracing it to the cards; and, after much contemplation, he decided upon the remedy, which he carried out as follows:

Upon meeting Thomas one day he said to him, "Thomas, I wish to buy a pack of cards—the kind you play with."

"I declare, Mr. R., I do not know where you could get them," was the reply of the boy.

"I want them very much; I will give a silver dollar for them," continued the old man.

Now, as this was about twice the value of a new pack, and as the cards owned by Thomas were somewhat worn, this was too much for him; and, after some hesitation, he replied, "Mr. R., I have a pack, somewhat soiled and worn, that I will sell you for that amount."

"Very well. I care nothing for their condition," said the old man, as he paid the boy and received the cards.

The boy was at first delighted with the trade; but upon seeing Mr. R. take out his pocket-knife and begin to cut the cards into small bits, he, in surprise, exclaimed, "Mr. R., what on earth do you mean? Did you not just pay me a dollar for those cards?"

"Yes, my boy, but these are the very cards I wanted; and the only purpose I had in buying them was to get them out of your possession. I have seen for some time what a disadvantage they were to you, and what a trouble to your mother. You know, Thomas, how poor I am, and how hard it is for me to earn money. Now, if I can make this sacrifice for you, can you not resolve to buy no more, and never to play them again?" By this time the boy was in tears; and while I do not know that he made a promise, he acted ever after as though he did; and when he had grown older he joined the church and has since lived an active and consistent member, always taking a lively interest in the welfare of the young, to whom he often relates the incident given above. W. H. GREER.

Paris, Tenn., Apr. 11, 1887.

Well done, friend G. I don't remember ever having mentioned the matter in print, but I always feel greatly worried and troubled whenever I discover that any boy, or girl either, is learning to play cards or is attending card-parties. When I started planting my basswood orchard a young couple rented a farm just across the road. They were a nice, bright young couple; but it saddened me to see that they thought it was the thing to have their young friends visit them and have card-parties; and card-playing got to be so much the order of the day that on one occasion these young friends wasted one bright summer forenoon in their card-playing. Our young farmer never hitched up his team, although the weather was beautiful, and the season at just such a point when every farmer, young and old, ought to be just jumping to get the work along, and his wife left her breakfast-table without even washing the dishes until it was dinner time. The next year they rented another farm, and they may be both in the county infirmary by this time, for aught I know; for it is a fact, that one little foolish bad habit like this may wreck a life. No wonder the boys did not prosper with their farmwork.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

WIDE FRAMES VS. CASES; CLEANER SECTIONS FROM THE FORMER.

WHILE surplus cases are under discussion I should like to put in a word for wide-frame single story cases. It is impossible in this locality to produce gilt-edge honey unless the sections are protected on all four sides.

When my honey is ready for market, the sections look almost as clean as when first put on the hives. This will not be true where cases are used without wide frames, except in rare instances. I know by experience that this is so; for wherever I have tried

to buy comb honey to sell again, unclean sections have been the one great drawback for me to do a successful business at it. A great many bee-keepers do not think this matter of having clean sections around their honey makes much difference; but I know this one thing has done a great deal toward lowering the prices of comb honey. Even storekeepers have fallen into this same rut. Go into almost any store in any town or village where honey is sold, and you will find it, nine times out of ten, just as it was taken from the hives. Wake up, brother bee-keepers! put your comb honey on the market looking neat and clean, in small clean packages, and you will find less trouble in selling at much better prices. I should like to ask if any one has ever tried the perforated zinc for separators.

W. H. SHIRLEY.

Mill Grove, Allegan Co., Mich., Mar. 22, 1887.

Very true, friend S.; but Dr. C. C. Miller claims that he can get just as clean or cleaner sections from the T super when the slatted honey-board is used, than from wide frames. If we are correct, he told us that the sections, when taken from the T super, take less cleaning than the sections when taken from the wide frames.

BEES AND RAILROADS.

I have lately noticed in GLEANINGS several inquiries about keeping bees near a railway, mill, or factory, the idea prevailing that the noise and jar are prejudicial, especially in winter. I give my experience. I have kept bees for the past four years near a railway, not four rods distant, with a roller-process gristmill within four or five rods, and I can see no difference between my bees and my neighbors' as to wintering, etc. I believe the bees get used to the noise as we do. Every train through the night used to wake me, no matter how soundly I slept; but now I never hear them. The soil is a firm clay, and the road-bed is level and solid, with good rails; but there is a large traffic, and heavy trains. My bees, 60 colonies, are wintered on summer stands clamped in sawdust, but so the entrances are open. They are in fine condition. E. J. BURGESS.

Tilbury Center, Ont., Can., Apr. 22, 1887.

HOW TO GET RID OF A HYBRID COLONY.

Last summer, having a black hybrid colony of bees that I desired to get rid of, I took brood from them three or four times, each time leaving a comb of eggs. I used the brood to build up a nucleus of pure bees. When I found a choice pure colony superseding their queen I inserted one of their queen-cells in this black colony, after taking out their queen. As I was busy I did not again go to that colony for several days. When I did go I found a beautiful Italian queen. As I had no other place to use her I built up the colony with brood from other colonies that could spare it, the colony being now the size of a strong nucleus. When fixing up for winter I found them a fair colony; but as soon as set in winter quarters they began to die off. At the end of a month, as there were so many dead bees thrown out of the entrance, I marked them dead. I could not imagine what could be the matter with them, as most of the other colonies were so quiet, and were throwing out so few dead bees. As their hive was at the bottom of a pile of colonies, and in the center of the cellar, I could not very well examine them. After six weeks or so they seemed quiet — in death, as I supposed. But when set out

this spring I found a beautiful small Italian colony, large enough to build up by the time white clover blooms. Now, I wish to ask why those black bees died off so fast the fore part of winter. Was it not because their vitality was injured by caring for so much brood? They had a very vigorous queen, and I must have taken away eight or ten combs of capped brood. Mr. Axtell said it was a pity to kill any queen so productive, even if she was a black hybrid.

MRS. L. C. AXTELL.

Roseville, Ill., April, 1887.

I think you are doubtless correct in the matter. The black bees died off because they had been so severely taxed, and were perhaps prematurely old. The younger Italians doubtless took their place, and saved the colony from ruin.

ANOTHER WAY TO MAKE T TINS.

I have accidentally learned how to make the T tins, using the common folder found in every tinshop. Although of no benefit to you with your machinery for making it of one piece of tin, it may prove of benefit to hundreds of others who may want a few tins quicker than they can get them of you. I was having some L tins made of light tin, for use not connected with bee culture, and our tinner suggested that if I wanted them stiffer he could fold one edge on $\frac{1}{8}$ inch before they were folded into the L shape, which left them like  FIG. 1, and very much stronger; and by slipping two together I found I had quite a strong T, and no solder required to hold them—simply prick punch them in a few places, and they seem as firm as if made of one piece, and I think they are as strong (or a little stronger) than if made of one piece, as there are three thicknesses of tin at the top edge. To make them I would cut one-half of the tins 3-16 wider than the others, and fold one edge 3-16, and then  they are both of a width, as in Fig. 2; then fold each one into the L, and slip the tins together, and then you have a T, as in Fig. 3, and you will be surprised at its firmness. I trust that you will get the idea, and take it for what it is worth.

O. R. COE.

Windham, N. Y., March 25, 1887.

Thanks, friend C.; but we had already made them on this plan some time ago. It makes very nice stiff strong ones; but it is more work than to make them as we now do with special machinery. The idea may be of value to many of our readers.

HOW TO MAKE ROBBERS BECOME DISGUSTED WITH PILFERING.

I undertook to look through a hive a day or two ago, but got a job on hand by it, and had to close them up again quick, as another colony commenced robbing them with a will. I have noticed that some object to Italians on that account. I have but one colony of Italians, and can control them as far as their disposition to rob is concerned, much easier than some blacks I have. My Italians start often, but I can stop them with but little trouble so far. One colony of blacks, however, in particular, I have most trouble with. My plan for stopping may not be new; but as I am a new hand with bees it is new with me. I made a light frame, and covered it with wire cloth. It just fits in the portico of the hive, and extends out some six inches. When I

find the bees are robbing a hive I put it on until I have a considerable number of the robbers caught as they come out loaded. I then take it off, and, holding the open end down, step away a few feet from the hive, turn it up, and let the caged robbers fly out. I can then easily see where the most of them go. I next put my wire cage on the hive where the most of the robbers are, and leave it there some time, keeping any more from coming out. After those coming in worry around awhile, I slip it out, when the incoming bees pile in in a hurry. I put it on again, keeping the inmates in the hive some time. They get bothered so that they conclude to stay at home. I usually conquer them in a short time by this means. The Italians so far have been easily conquered in this way, but it takes longer to satisfy that one hive of blacks.

R. J. MATHEWS.

Riverton, Bolivar Co., Miss., Feb. 15, 1887.

The plan you suggest, friend M., is ingenious, and, so far as I know, it seems to be new. Most of the robbing is usually done by a few certain hives, and sometimes it is one hive that is keeping the whole apiary in an uproar. Another plan to determine which hive it is that is guilty is to sprinkle flour on the backs of the bees as they come out of the hive that is being robbed. While doing this, have an attendant watch the entrances of your different hives. Shutting up the robbers has been tried to some extent; and with a hive that has a portico on it, it may do very well; but in hot weather there is always danger of smothering, unless a large opening like a portico can be covered with wire cloth.

HONEY STOLEN.

On the night of the 17th of this month the building in which I had my honey stored was entered by thieves, and about 300 lbs. of honey stolen. There were 16 crates already put up and stamped with my name in two places; also another stamp in which to insert gross tare and net weight of honey, ready for market; the rest was in cases (Heddon), just as I had taken them off the hives, and some loose sections. They also jammed some sections in a box, etc., which they left in a greatly damaged condition. My loss is about \$35.00. The greater part consisted of white clover and basswood. I have always been free to give to my neighbors and friends ever since I have kept bees. I have given away several dollars' worth, and have the good will and respect of all of them so far as I know, having lived here 43 years. I think the parties who took it would steal my pocket-book, horses, or any other property. I write this, trusting that it may serve as a warning to the fraternity to keep a lookout. Any suggestions from you as to what steps I should take to trace it, or to prevent a like occurrence, will be thankfully received, as I have about 1500 lbs. left which they may try again, if they are successful this time.

WM. H. GRAVES.

Duncan, Ill., Nov. 25, 1886.

As a rule, friend G., I believe a crop of honey should be kept under lock and key—not only to keep the honey from being stolen, but to remove temptation, and to keep people honest. I think I should try pretty hard to find where such a quantity of honey went, if possible. The good of your community demands that the culprit be

brought to justice. As such a quantity must be disposed of sooner or later, it seems as if it would not be a very difficult matter to get hold of some clew to it.

DO KING-BIRDS SWALLOW THEIR VICTIMS? A FEW FACTS WHICH SEEM TO PROVE THAT THEY DO NOT.

In GLEANINGS I find, on page 295, a letter from L. Williams, in regard to the king-bird. My experience is quite different from his. My observations are, that it catches the bee and holds it in its beak and sucks the nectar from the bee, then drops it, and is ready for more. I have kept bees for several years, and there are times during the season when the bird is very troublesome. I have killed hundreds of them, and watched them closely, and I have taken the pains to open a large number of the birds, but I have never found a bee inside of the bird, and I have shot them and opened them instantly after seeing one with the bee in his beak. The king-bird is the only bird that I take pains to get out of my apiary, and I have sworn vengeance on him.

Bees in this part of the State this spring are not in first-class condition. Some have lost heavily. My loss is about 10 per cent, and I consider this a good showing. I have on hand at this writing, 115 stands. Some are light, but the majority are in very good condition, but are getting short of stores. We are having a cold, dry, backward spring.

W. A. WICKHAM.

Clermont, Iowa, April 21, 1887.

A KING-BIRD STUNG TO DEATH.

In GLEANINGS for April 15, page 295, L. Williams writes, among other things, "King-birds, and why queens disappear." Now, one of our children found a dead king-bird near our apiary, with about a dozen bee-stings in his breast and under his wings. Wife cut it open and examined its crop, but she found not the sign of a bee inside; but a few seeds and stones instead was all it contained.

J. R. WILSON.

Carlisle Springs, Pa., Apr. 19, 1887.

The two reports above seem to indicate that the birds do not swallow the bees so that they are found in their crops. The report in the A B C book, however, makes them out exceedingly guilty. It is possible, however, that they simply kill the bees and squeeze out the honey, throwing away the mashed-up bodies, so that none of these things would ever be found in their crops. I think the evidence is pretty conclusive that they do kill bees.

A FEW INTERESTING FACTS CONCERNING THAT CALIFORNIA SWARM FOUND IN THE OPEN AIR.

I observed in GLEANINGS, page 608, 1886, a cut of a swarm of bees in the branches of a tree, and a description of it as belonging to Southern California, and taken from a photograph sent you by a friend. I can give you the history of that swarm. In the summer of 1883 a swarm of hybrid bees clustered on the branches of a mulberry-tree standing on the grounds of O. W. Childs, in this city. The bees built three sheets of comb, nearly a foot long, the first season, and came through the rainy season in good order, though not protected in any way, except by the foliage of the tree in the summer. The next season they built the combs two feet long and added an additional comb on each side of the origi-

nal outer ones, filling the outer combs full of honey, as could be readily seen, as they were not more than twelve feet from the ground. Hundreds of people visited the place at different seasons of the year, to see the bees at work, and wonder how they could prosper so without any care or protection whatever. The tree stood near Mr. Childs' carriage-house, and during the colder days of the third year of their squatter sovereignty they began to trouble the horses occasionally, and I was requested by Mr. Childs to take the bees away, if I desired to do so. I accepted the offer; but before taking them down I had the photograph taken from which your cut was made. I was about making arrangements to have a cut of it made, with the intention of making a little money out of it; but your publication of it nipped it in the bud. I can't imagine how your friend could have secured a photograph of it, as I arranged with the photographer to have the exclusive control of all his work on that subject, and spent some ten dollars in money, besides time, in securing the picture, and all I made of it was the bees that Mr. Childs gave me. I took the bees out to my apiary in the San Fernando Mountains, and am working the stock for increase, and I believe I have some bees that will compare favorably with the best imported bees that I have seen. In the honey season they come quick and go quick, carry good loads, and are as prolific as the Holy Lands.

Los Angeles, Cal., Feb. 17, 1887. C. N. WILSON.

I am sorry, friend W., if there was any underhanded work about obtaining the photograph. Is it not possible this was taken from a photograph of another one strikingly like the one you have mentioned? It would be nothing strange if two colonies, similarly located, should resemble each other. We instructed the engravers to spare no expense in making a nice engraving, and they followed directions so completely that the cut cost us, we believe, some thirty or forty dollars. There might arise a question here as to the moral right of the picture. We were an innocent party in the transaction; but so is a man who buys stolen goods of any man; yet the law permits the rightful owner to take it when he can find it. Of course, you are welcome to your photograph back again, if you want it; but the next question is, Who is the lawful owner of the engraving that cost us so much money? We are quite ready to do what seems right in the matter.

HOUSE APIARIES.

Some will prefer and use house apiaries, and of course all will want the best. I have used mine another year (as described in GLEANINGS, page 744, 1885, and page 105, 1886.) I like it much, as it is so handy. I do all my extracting, transferring, and dividing, in it without any trouble from bees. I find they sting less. My house does not heat up as Mr. Clark says.

\$365 FOR SEED FROM 12 ACRES OF ALSIKE SOWN.

Farmers sow lots of alsike clover here. There is more than 100 acres sown within two miles of my apiary; one man took a load of alsike seed to Adrian, a short time ago, that brought him \$365, which grew on 12 acres, and that was not all of the crop. You are right as to the quality of the honey from it. I like it the best of any, and most of my customers the same. I obtained only about 600 lbs. of honey, principally comb honey. I had 11

swarms in the spring, mostly light. I had them all to transfer. I made them into 24, and doubled back to 14. I have bought 24. I have now 43. The 14 are in hives the same size as the new Heddon hive, but not closed end frames. The frames can be taken out when either side up. I like them much. I will explain them more fully some time.

Holloway, Mich.

H. L. HOXIE.

A SUGGESTION IN REGARD TO THE LOOSE T TINS.

Do not think I have not been an interested reader of the T-tin discussion, for I have used 60 of the T-tin supers inside of my S. hives. They work well in chaff hives too. I have become a convert to Dr. C. C. Miller's theory in regard to loose T tins. How well I shall like it in practice remains to be seen. There is one point about it which I have not seen in print. It allows an outward spread to the sides, which nailed tins do not allow. This would cause it to slip off easier. Tell the doctor to use a straight-edge, two, three, or four inches wide, under his mallet, and long enough to reach across his super when driving it down, instead of driving directly on the super, and I think he will be better pleased.

J. REYNOLDS.

Clinton, Kennebec Co., Me., Apr. 25, 1887.

SQUARE CANS VERSUS KEGS FOR SHIPPING.

When we ship in kegs, our kegs are thrown in free. Is that the case with the square cans, or do you get any pay for them? or are any returned, and at what expense by the express companies? We get the five-gallon kegs delivered here at 27 cts. each; 100 of your square-can cases, delivered here, would cost over 80 cts. each, or over 40 cts. for what we pay 27 cts. for in a keg. This difference would be quite an item out of the profits. I think the cans are very much the best, especially where we need to warm up candied or cold honey; but the extra expense is in the way. We use from 100 to 150 kegs here per year, and we could get up an order for 100 cases for this season's use if you can tell us of some plan to get back part of the expense.

Oneida, Ill., Apr. 11, 1887.

W. M. KELLOGG.

We always charge for the square cans and boxes to hold them, friend K. I never heard of any one returning them. They are generally utilized for some other purpose, when the honey is taken out, I believe. I have never heard of kegs so cheap as you mention; but our experience has been that they are always more or less leaky. I do not know but that our foul brood came from purchasing honey in kegs, and then the kegs got to leaking, and the bees got to working on them.

HONEY-DEW AND PLANT-LOUSE NECTAR: THE SUBSTANCE AS FOUND IN THE EAST.

Not long since I came across this bit of history, which was of great interest to me, and may be, perhaps, to some of the readers of GLEANINGS:

"Forsk. says, the caravans of Mecca bring honey from Arabia to Cairo, and that he has often seen honey flowing in the woods in Arabia. It would seem that this flowing honey was bee honey, and this fact illustrates the story of Jonathan. But there is also a vegetable honey that is very plentiful in the East. Burckhardt, speaking of the productions of the Ghor, or valley of the Jordan, says one of the most interesting productions of this place is the Beyrouk honey, as the Arabs call it. It was described to him as a juice dropping from the

leaves and twigs of a tree called 'gharrab,' of the size of an olive-tree, with leaves like those of the poplar, but somewhat broader. The honey collects on the leaves like dew, and is gathered from them, or from the ground under the tree."

It would seem that this vegetable honey is identical with our honey-dew, and the tree upon which it is found seems to be quite like our poplar (tulip), which is often infested with aphides. The secretion there is evidently more profuse than we know any thing of, if it "drops from the leaves" and may be "gathered from the ground." In speaking of this very thing, I notice Cheshire says, "I saw falling in the sunlight, a thick, constant shower of minute drops, which were being expelled from the anal apertures and nectaries of the aphides infesting the leaves." I notice Cook distinguishes between the aphide nectar and the "real honey-dew which the leaves distill." F. C. BLOUNT.

Lawndale, Ill., Feb. 25, 1887.

DANDELION.

Will you please favor me with answers to the following questions?

1. How many acres of dandelion does it take to keep one hundred colonies busy?

2. How late in May do bees usually work on dandelion in Ohio?

B. KENYON.

Oakland, Cal., Apr. 15, 1887.

Friend K., your question is hard to answer; but if an acre of dandelions would furnish as much honey as an acre of alsike, I would suggest estimating ten colonies to the acre. In that case you would want ten acres of dandelions. As cultivated dandelions are now receiving a good deal of attention, especially in the east, the time may come when we shall have ten acres in one locality; but where they are raised for greens, for table use, I believe they never let them come into bloom. I think bees work on dandelions about two weeks with us. They commence blooming heavily about the first of May.

EXPERIENCE WITH CYPRIANS.

My experience with Cyprians is so much like that of Mr. Abbott, as given on p. 303, that I am surprised that they should be recommended as superior or even equal to the Italians. My first experience with them, when they were merely a nucleus, was very satisfactory, and I was inclined to praise them on account of the prolificness of the queen; but as they increased in number, so the trouble in handling increased also, until they were nearly unmanageable. I put on a lot of empty combs and let them completely alone until almost winter; and, being so extremely ill tempered, they were not prepared as usual, and nearly died. However, they soon became as populous as ever, and were a source of annoyance another season, at the end of which the colony was requeneed, and that with more difficulty than any previous manipulation. The principal reason that I kept them so long was on account of the prolificness of the queen; yet they did not gather any more honey than other colonies, I believe; and, not being accustomed to a veil, and seldom having one without holes, I dreaded to have any thing to do with them. My last veil had a window in which broke out, and I have not yet sewed the hole shut.

CHRISTIAN WECKESSER.

Marshallville, O., Apr. 19, 1887.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: *Sheep Off, Silver Keys, The Giant-Killer, or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room.* We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

TRYING THE WINDMILL.

LET me see; I believe we left Jimmy and Sam starting off to school, lamenting because they had to go. They argued that nothing would be lost if they stayed out only *one* day. As they had been at school so steadily they knew that the final examinations could not possibly show it. I presume they did not think that final examinations were not the only things they went to school for. Mrs. Green could have told them that it is the every-day attention to regular duties that makes success in any department of life, and that boys who go to school every day in the year, when school keeps, unless sickness or something else of a serious nature prevents, are the boys who, when grown, make the most successful men, as a rule.

Our young mechanics, however, were not inclined to take a very philosophical view of things. They finally reached school and got into their seats just as the last tap of the bell announced that school had begun. They took their books out, laid them on the desks and tried to study, but their minds were on the grindstone and windmill. At recess, as usual, there was more speculation among the boys in regard to the windmill. Jake insinuated, once or twice, that "twouldn't last long;" but the two had so much confidence that it *would* last, that they did not pay much heed to the remarks, which savored strongly of Jake's jealous disposition.

After school was out, Jimmy and Sam hastened to their windmill. On their arrival home, Mrs. Green asked Sam if he would not go up town and get some tea—they were entirely out, and would need some for supper. Sam was not at all willing to comply with his mother's wishes, but said they could "get along without their tea." He meant no disrespect by it, but said it in such away that it was evident he thought the windmill was of vastly more

importance than tea, supper, or any thing else. Very fortunately for Sam, at this juncture Jimmy's little brother Ted happened over, and the boys very speedily made a bargain with him, by which the youngster was to receive a whole cent for getting the tea and bringing it home. The boys then started toward the scene of the windmill. It was not revolving as fast as it was in the morning, and it was squeaking. It was but the work of a few moments to get a little lard and apply it to the wooden bearing. It then revolved to the boys' great satisfaction. After a good deal of fussing they finally got their grindstone connected with the seat of power by means of the clothes-line. The grindstone immediately commenced revolving, and a more intensely pleased couple of boys you never saw. They found one trouble—that the clothes-line would keep running off; and in spite of all the two windmill-builders could do, they could not make it stay on. Just before supper Mr. Green was called upon to assist. He explained to them how the grindstone was "out of line" with the drive-wheel of the windmill. A very little adjustment fixed it so that the clothes-line held its position on the wheel. Mr. Green, as he witnessed the grindstone revolving, now expressed some feeling of satisfaction, and even became enthusiastic. Just at this moment his wife called out that supper was ready, but he was so intent that he begged they might be excused for just a few moments more. An ax was soon applied to the stone, to be ground, but the mill was hardly adequate to the work. On going to the barn window they discovered that the little breeze was dying down, as it is apt to do in the evening; but the boys said their machine was "doing well enough;" and that, when there was a good stiff breeze, they would have "lots of power."

That evening, after supper, Mr. Green offered to purchase for the boys a light-running saw-arbor in consideration of their making the windmill run successfully. A careful inspection of the price list from the Home of the Honey-Bees showed that a mandrel could be had for the small sum of \$2.25. Mr. Green told the boys that they would also need a couple of thin saws. The order for all was duly made out and sent. After Jimmy had gone home, and Sam was just crawling into bed, he thought he heard a noise in the back yard, out by the barn. It sounded as if some one were throwing stones. Sam poked his head out of the window, and listened; but every thing seemed perfectly quiet. Remembering his previous experience, and how the moon had made fun of him the night before, he crept back to bed, and knew no more till daylight.

The next morning, just as he was going toward the barn, Jimmy followed him up. On looking toward the windmill the two were thunderstruck, not to say amazed—two of the fans of their windmill had gone, and the tail was split! "Surely," said Sam, "there was no heavy wind last night—what could have done it?"

"I know," growled Jimmy; and his face began to flush with anger; it was the work

of that good-for-nothing lazy pup of a Jake. I just *know* he done it."

"That's so," said Sam. "We will fix him for that. What a mean trick that was! Just because we are successful in making it go, and were having so much pleasure from it, he has got to go and spoil it all."

Sam was so angry and hurt that tears began to trickle down his cheek. Just then Mr. Green made his appearance. On seeing the windmill, and on being told who the probable malicious perpetrator of the mischief was, he cautioned the boys, saying that they were not *sure* that Jake did do it—that they had no positive evidence of any one doing it.

"But," said Sam, "I feel pretty sure now, that I heard some one throwing stones just as I was going to bed last night. I concluded then that it was my imagination, and gave no further attention to it."

"Are you sure," said Mr. Green (seeming not to have heard Sam), "that you fastened those wings to the mill securely? Are you sure that you did not leave out some of the screws?"

Jimmy and Sam were both positive that they had made every thing very strong. Although Mr. Green in his own mind felt satisfied that some person very maliciously inclined had endeavored to vent his spite on the two boys, he tried to dissuade them from taking this view of things. The boys, on the contrary, felt confident, and they determined that they would sift the thing clear to its very depths. Said Jimmy to Sam, after Mr. Green had left them, "I tell you, Sam, we won't say any thing about this 'ere thing at school. We'll fix the mill as soon as we can this morning, and pretend that nuthin' unusual has happened. In the meantime we'll tell Frank the whole business, and let him ask around, kind o' still like; and if he finds out sure that it was Jake, we'll give him the worst old pummeling he ever had in his life."

"Yes," said Sam, "and every fellow at school will side in with us—won't they?"

Continued June 15.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes:
An' faith, he'll prent it."

A YOUNG BEE-KEEPER.

I have a swarm of bees. They are in a thin-walled hive, packed with hay. Last summer we had 87 swarms of bees in the spring. We increased them to 100, and got 4530 lbs. of honey. My swarm made over 50 lbs. I am going to stay at home from school this summer to help take care of the bees. We have 40 strong swarms now, and 22 weak ones. All but mine and two other swarms are in chaff hives. A neighbor of ours was going to kill a swarm of bees for the honey (about 6 lbs.), and father gave him 6 lbs. of section honey for them. They are the strongest swarm in the yard now. In the fall we go to each hive and take out three frames from the strongest, and four or five from the weakest hives, and feed back the honey. The main dependence for honey here is white clover and basswood. When

we work with the bees in warm weather I do not wear any shoes or gloves. We made 32 new hives last winter, and I helped saw the boards and nail them up.

PRYER LINDLEY.

New Providence, Iowa, Apr. 2, 1887.

BEEES AND CARP-PONDS.

We had about 40 stands of bees last spring. They gained up to about 80 stands. We extracted six or seven barrels of honey, and got a few hundred pounds of comb honey. Our bees wintered outdoors last winter, with two or three thicknesses of cloth over them. This spring there were 41 stands left. I think a person can get more extracted honey from strong swarms in large hives.

Summer before last we made a carp-pond. It is about ten rods long and four or five rods broad. It is 4½ feet deep at the south end, and gets shallow gradually to the north end. The next fall father put 16 German carp in the pond. In the spring we let the water out, and the fish were about three times as large as they were when they were put in. Last summer we made another pond. It is about 8 rods long and 4 or 5 rods broad. It is about 8 feet deep at the south end, and 4 at the north end. We put 46 young carp in our ponds last fall. We have not let the water out since last spring.

Falls City, Neb., May 1. ALBERT B. WILTSE.

AN INCUBATOR; HOW IT WORKS, GRAPHICALLY DESCRIBED BY A LITTLE GIRL.

Pa has started poultry-keeping. He made two incubators, and filled them with eggs. The first one did not hatch, but the second one hatched well. You don't know how funny it looks to see chickens hatching in such a box; but I tell you it is a pretty sight. Pa made a brooder to put them in. I wish you could see them when they are eating. We have three good-sized boxes for them to eat in, and they fill them up too. They are the prettiest when they are eating, for they seem to be so well pleased. I like to see any thing mirthful, and I like to be so myself. The last two or three that hatched were cripples, and the other ones trampled them under foot. I could not bear to see the innocent little things hurt, so I wrapped them in a cloth, and once in a while I took them out and fed and watered them. I do not know whether I can raise them or not, but I will try my best. Pa is going to make a large brooder to put our little pets in. He has built a house to put them in, and I shall be glad of it too, for they are so noisy in the kitchen. They pick each other's eyes. Sometimes they go blind, and if we grease their eyes with tallow they come open again.

CLARA STREBY.

Paw Paw, W. Va., April 4, 1887.

HOW PAPA CHASED AND CAUGHT A SWARM.

Once when pa was coming home in the afternoon he heard a swarm of bees. He started after them, and they came past the house where we live. Mamma heard them going by, and when she looked down the road she saw pa coming up as fast as he could come, his heels flying as high as his head. When he came to the house, mamma asked whose bees they were. Pa said, "They are mine if I get them," and off he started up through the town; and when he came to the square, one side of the street was lined with people, so he came back to the house and got a box, and put them in. It was a very big swarm. We got 50 lbs. of honey from the old swarm. Pa has the boxes about 6

inches from the ground. He has fixed cinders around the box. He thinks that sawdust is not very good, as it draws the ants, and cinders, if any thing, keep them away. Mamma and I tend to the bees while papa is away. CORA FRITZ, age 12.

Marshallville, O., Mar. 18, 1887.

A QUEEN-BEE IN A RUBBER BOOT.

My pa has 26 colonies of bees, and he lost only one through the winter. He wintered them in chaff hives, and on their summer stands. One time he was hiving a swarm, and when he came down to the house he pulled off his rubber boot and found the queen in it. She looked discouraged. We put her back in the hive. ARTHUR STILES.

Deposit, N. Y., Apr. 30, 1887.

It was a little remarkable that the queen should get into the rubber boot, and still more so that she wasn't killed, friend Arthur.

THE LITTLE BEE: COMPOSED BY A JUVENILE.

There is a little traveler
Which travels many miles
O'er many a wood and meadow,
And sucks at flowers and spiles.
For he is called the honey-bee,
Which travels many a day,
And gathers nice sweet honey
Through all the sunny May.
This bee works hard on basswood,
From the bottom to the top,
And works on buckwheat also,
All o'er the farmer's crop.
And he works the summer long
Through all the trees and dale;
He can not work, however,
Through wind and stormy gale.
This little traveler worketh
Till his wings are worn away,
And in the frosty weather
This bee shall pass away.

O. A. BURNETT, age 14.

ALICE'S POETRY.

I have seen in your journal that any little girl who would write a verse or line about bees would, in return, receive a book. Here I will write a little verse about bees.

Oh the bee, the pretty bee!
As it flies through the fields,
Sipping honey from all the flowers,
And it never troubles any one as long as it is left to itself;
But if it is bothered, then look out for an angry blow.

ALICE E.

Well, Alice, I am afraid there is not much real poetry in your lines. Your sentiment is good, and you started out very well; but somehow in the rest of the lines you forget all about rhyme or meter. If you do not know what rhyme or meter is, ask your teacher.

HATTIE'S LETTER.

I wrote to you in 1884, and I saw my letter in print. It did me so much good, I believe I will write again. I think that a great many people take your good book. After I wrote before, I got more letters from bee-men; and the funniest of all was a letter saying, "To Hattie Hall, Esquire." Mamma and papa laughed heartily. I always imagined I should like to live with you, because you are so much like a preacher. My desire is to live with a preacher. We have a good Sunday-school and prayer-meeting here every Sunday. We have a Baptist and Methodist church here. I have two brothers and three sisters. My two oldest sisters are off at school. HATTIE HALL, age 13.

Sparta, Miss., March 24, 1887.

HOW ALICE HIVED A SWARM.

My aunt was sick, and papa and mamma went to see her. While they were gone the bees swarmed and settled on a peach-tree. I thought I must hive

them, or they would be lost. I took a little table and set it under them and went into papa's work-house and got a hive and put it on the table and got some water and sprinkled on them. I jarred the limb so as to get them on the table, and when they were on the table I sprinkled some water on them, and they went in nicely. I got but one sting, and that was between my eyes. It caused my face to swell so that my eyes were nearly closed. Papa said I did well for the first time.

Buntyn, Tenn.

ALICE NORRIS.

FEEDING BEES WATER BY THE AID OF CORNCOBBS. JAPANESE BUCKWHEAT.

Papa's bees are doing well. He received some buckwheat from you yesterday, and he thinks he will have him a nice patch of it for his bees. Those buckwheat-seeds looked just like beechnuts in Tennessee, only they are a great deal smaller. I have a pretty rose-bush in papa's bee-yard; and when I go to get a rose a bee stings me, and I hardly ever get a rose for I had rather do without one than to get a sting. It has not rained here in a long time. The bees are going everywhere to get water. Papa fixed a trough and put cobs in it to hold water for them cobs hold water better than any thing else that we know of. We have to fill it up every day. I have written two letters before this, and got a book, but I don't expect to get another one this time, for I don't know any thing new.

MATTIE F. DILLEHAY, age 13.

Milford, Texas, April 6, 1887.

A COLONY THAT TRIED TO SWARM ON FOURTEEN CONSECUTIVE DAYS.

Pa has 110 stands of bees in the cellar. He sold about half of them at our sale last fall, and keeps them till April 15th. Last summer pa had one swarm that came out nearly every day for fourteen days. He kept the queen-excluder on the entrance. He wanted to find out if the bees would finally kill their mother for not going along with them, but they did not. He finally hived them with their queen, and then they went to work in earnest. All the fourteen days they were swarming they gathered but little honey. CLINTY BRUBAKER.

Maxwell, Story Co., Ia., March 29, 1887.

Thanks, friend Clinty, for so carefully giving the results of your father's experiments. The incident which you give is most remarkable, and I wonder that the bees did not become disgusted with their queen and kill her. I think, however, that, as a general rule, where the perforated metal is kept over the entrance, and the bees swarm two or three times in succession without bringing the queen with them, they will finally kill her and raise another in her stead. After the swarm has come out once, I believe I would catch the queen and place her among the flying bees before the swarm returns, and you can then hive them where you wish.

BEES IN CELLAR CONSUMING LESS STORES; RUTH'S BIG COLONY.

We had 23 colonies at the beginning of winter, and we have lost only two so far. For the first time we wintered four colonies in our cellar, which has a cement bottom. I helped papa carry them out of the cellar yesterday morning; and when he opened one hive there was but an ounce of honey in the frames, and no brood or eggs. At noon, when he looked into the hive, the queen had begun

to lay. Excepting this one colony, those that were in the cellar were stronger colonies, and had not consumed so much honey as those out of doors. Last summer, during swarming season, a swarm came out and alighted on a currant-bush. While papa was getting ready, another swarm came to the same place; and, while putting them in the hive, a third swarm came and went in with them, making such a large swarm that papa had to put on another story, and could hardly carry it to its place on a wheelbarrow. RUTH WAITE.

Hinckley, Ohio.

That bees in cellar do consume less stores than those out of doors is generally admitted. It is not always the case, however, that cellar-wintered colonies come out stronger.—Those three swarms must indeed have made a rousing big colony.

BEING TRUE TO OUR NAMES.

Pa says his first number of GLEANINGS and the "first boy" came to his house about the same time, so I was named after you. I will try to live so as to be worthy of your name. I have never used any profane language, and never will, and wish all little boys would try to do the same. I never tell my ma that I "won't," or "don't want to," when she asks me to do any thing, for she is kind to me, and I intend to be obedient, and help her all I can.

I have split and corded ten cords of wood in the last two weeks, besides having lots of time to play. Roy Gift helped me two half-days. Ma said she would get me a new illustrated Bible as soon as I got the New Testament read through. I mean to read four chapters every day, but once in a while I forget it. The bees are in the cellar yet. Pa says there is only one colony dead out of 130. He is anxious for the weather to get warm, so there will be something for them to do, then he will put them out. He says he has learned by sad experience that bee-keepers generally put their bees out too early in the spring for this climate.

We got 40 eggs from 67 pullets yesterday. They will lay about 90 dozen this month, and did lay about 60 dozen last month. I heard pa say he thought that bees that were about one-half Italian and one-half black, and chickens half Brown Leghorn and half Plymouth Rock, were the best bees and chickens for business. ERNEST GILL, age 10.

Star, Vernon Co., Wis., Mar. 27, 1887.

You must indeed be a dutiful son. If the name "Ernest" implies all you think it does, and all you live up to, I must confess that I have not been as "Ernest" as you. I would that all our little juveniles might try to live as you do. The boy who makes the Bible his companion, as I think you do, could not well be otherwise than "earnest" in the sense which you give to it.—In regard to taking bees out of the cellar too early in the spring, I would say that your papa has come to the very same conclusion that Dr. Miller has.

HOW CHARLIE MADE TWO DEAD COLONIES COME TO LIFE.

My father has 36 swarms of bees now. I have 3. The first one of my swarms was short of stores in the fall, so I watched them. One morning I went out and they were dead. I brought them in the house and told mother to make some honey syrup. She took some candied honey and a little water, and put it on the stove till the honey was all dissolved.

I then took it outdoors to cool a little. When it was about as warm as new milk I opened the hive, took out the combs with the dead bees, and poured the warm syrup right on the bees and combs, put them back in the hive and shut it up, nailed some wire cloth over the entrance, and set them down by the fireplace. In less than an hour they were cutting at the wires, and had raised a great hum. I then put them upstairs, and gave them a chunk of honey that came out of a bee-tree which we found in the mountains, this being January 10, 1887. Jan. 15th I found eggs and small larvæ. Jan. 20th I put them back on their summer stand. March 1st they commenced bringing in pollen, and they are doing nicely.

A DISABLED QUEEN THAT IS STILL A GOOD LAYER.

I have another swarm of bees that I bought of my father, Feb. 1, 1887, he supposing they were dead. I told him I would give 25 cents for the bees and queen. He said, "All right." But they were not dead. I transferred them into one of my hives. The queen has both of her hind legs and her left middle leg injured in some way, so they are of no use to her; but she is one of the best layers I ever saw.

In the fall I had 5 swarms of bees, but now I have 3. I had one lose its queen, so I put 2 swarms into 1.

We have flowers here the last of February, generally; but this season there were no flowers till March first.

The apple-trees are in bloom. The apple-blossoms came out April 5th; peach-blossoms, April 10th; strawberry, April 10th. All the summer birds are here but orioles and wild canaries. Honey is selling at 12½ cts., extracted; comb, 15 cts.

If you wish, I will send cuts of my hive and my way of feeding out of one hive into an other kind of hive.

CHARLIE H. STEWART.

Altona, Col., April 17, 1887.

Many thanks, friend Charlie. You have unconsciously struck upon the same point suggested by Wm. C. Greer, in the Juvenile Department, page 311. I would advise you to carefully read the answer, and see if it does not confirm some of your experiments. The point you bring out is a good one; that is, we must not be too hasty in pronouncing a colony dead, even though it has every appearance of being so. You seem to have been a little wiser than your father, but it is not very often that boys have more wisdom, though they sometimes think they have. Twenty-five cents is pretty cheap for a whole colony of bees, is it not, even if they are apparently dead? but twenty-five cents would be a rather dear price if you found that it was impossible to revive the bees. Another thing, Charlie: You have given us proof that a queen with both of her hind legs disabled, and a middle leg besides, is a good layer. I am glad of this, for sometimes the legs of queens get injured in transit through the mails, and customers are inclined to kill them without even giving them a trial. Don't discard any queen, friends, until you know by actual test that she can not do good work.

ANOTHER JUVENILE INVESTMENT IN BEES.—HOW \$1.50 WAS MADE TO BRING \$8.00.

A year ago last summer I picked berries. Papa paid me the same for picking that he did other boys and girls, so in the fall he said I had better invest

part of my money in bees. He said he would sell me a nucleus for \$1.50. I put it in the cellar myself, and in the spring it was a nice little swarm. Papa gave me a hive, and hung the frames in it, and put in the division-board to shut them down on just as little space as they could occupy. I put a feeder on top, filled with extracted honey. When they increased so they needed more room I put in a frame of foundation. By the time the honey-season commenced I had a full swarm. I then put on the sections. When one set was full I took them off and put on another set. My racks hold two sections, which weigh $1\frac{1}{4}$ lbs. each. I sold my honey to papa for \$8.00. He has 440 stands. My brothers Willie and Ernest will each tend an apiary in the country this summer, and I will help papa in the home apiary. I cage queens for papa, and help take off honey, and take it to the honey-house. I am not going to let mine swarm if I can help it, for it will make more money if it does not.

I am 11 years old, but I started in the bee-business when I was 9 years old. RALPH BALDWIN.
Independence, Mo., Mar. 31, 1887.

Well done, friend Ralph. You started from the very bottom, without even *borrowing* money. By the conditions of the promise on page 226, I think you are fully entitled to the chromo, so we send you one. We will say again, that to all boys and girls who will do as well with *their own* bees, a chromo is waiting. Let us hear what you have done.

TOBACCO COLUMN.

PROF. COOK JOINS US IN URGING WARFARE AGAINST TOBACCO.

EDITOR GLEANINGS:—I wish to express my pleasure and gratification in view of the statistics which D. E. Brubaker gives in last GLEANINGS, p. 313. Just to think of 446—and, of course, as you say, that is but a fraction of the whole number—of permanently reformed smokers, or users of tobacco. Just to think of the useless waste saved; of dirty men made clean; of suffering households made happy; of disease-germs uprooted; of a great public nuisance in part, at least, abated! To be the instrument of such a blessed consummation is a glory to a man, and I congratulate you most heartily. When we think that more than half a billion of dollars is spent each year by our countrymen in not only a useless but a pernicious habit, and often when these very dollars are imperatively needed to give a family the bare necessities of life, no wonder we envy you your good and blessed work. When we consider how many men are steeped in the not only foul but seriously poisonous emanations of tobacco smoke, whose very presence makes rank the air of car or hall, what wonder we wish we had your power to convince men that there is a better way. As we remember the good wives and mothers who daily pray that their children may be kept from a dreaded habit in spite of inherited tendencies and degrading example, we pray that we too may be helpful to men, and may also aid to stay or cure the evil habit. When we note dread and may be fatal disease, the direct offspring of the tobacco habit, claiming victims each year, and these victims so enervated that

they are powerless to say no, when they know that "no" means life and "yes" death, what wonder that we are enthusiastic in our admiration of this part of your work.

We are having frightful examples each year of persons—especially young persons—who are so diseased from excessive use of tobacco, that physicians direct the total cessation of the use of tobacco as the only hope of cure. Often such persons are so enslaved, or have so lost their will power, that to stop is impossible—at least practically, for they do not stop. I have known several such cases, and yet the great army of boys—mere nurselings—that is constantly being recruited is almost disheartening.

Mrs. Axtell touches a still more serious aspect of this tobacco problem, when she intimates that the use of tobacco opens the door to the saloon. Oh, yes! we may even go further; these two join to lead the unwary to the third great evil which is sapping the very virtue of our people, and whose end is death. Said an honored State Senator to me a few years ago: "I am glad you work to keep our boys from the use of tobacco," though he used it himself. Said he, "Tobacco conducts to the saloon, and the saloon points to the way that leads down to death." Can any one doubt but that his suggestion was founded in fact? Many stop at the pipe; many halt at the saloon; many take the last fatal step, and leave virtue and manhood behind. Go on, Mr. Editor, in your effort to check the evil in the bud, and may God speed the work.

A. J. COOK.

Agricultural College, Mich., Apr. 27, 1887.

I have used tobacco for three years. I quit about three months ago. Will you please send me a smoker? If I ever use tobacco again I will pay for the smoker.

ALFRED S. VANSYOC.

Indianola, Iowa, March 16, 1887.

I have used tobacco for nearly 25 years, and have left off its use, and will never touch, taste, or handle it again; and if I do ever use it again I will pay for the smoker.

MILO GEORGE.

Bowling Green, Ohio.

I hereby promise not to use any tobacco in any form in the future, if you will send me a smoker. If I break my pledge I am to pay you for the smoker. I was a smoker of cigars.

S. H. ZEIGLER.

Mulberry, Pa., March 29, 1887.

I wrote you a letter some time ago, and inclosed 20 c. to pay the postage on a smoker for Mr. Braun, of Kilmanagh. He promises not to use tobacco again; and if he does, I will pay you for the smoker.

F. C. SMITH.

Kilmanagh, Mich., March 25, 1887.

I understand you offer to any man, who will stop using tobacco, a smoker. I will comply with those terms. I make the regular promise, that, if I ever commence using the weed again, I will pay you for the smoker.

A. WILBUR.

Scribner, Neb., March 21, 1887.

I have used tobacco for 15 years; but in February last my father-in-law and I resolved to quit using tobacco. If I am entitled to a smoker, send it along; and if I ever use the weed again I will pay you for the smoker.

J. C. HALL.

West Liberty, Iowa, Mar. 30, 1887.

I have used tobacco for eight years, and I hereby pledge myself to the usual promise.

Prattsville, N. Y., Apr. 10, 1887. C. E. CONINE.

I have quit the use of tobacco in all its forms. Please send me the smoker; and if I commence again I will send you the full price for it.

S. W. DUCKWORTH.

Ritchie C. H., W. Va., March 18, 1887.

Having quit the use of tobacco in all of its forms, I wish to pledge myself never to use it again. Please send me a bee-smoker; and if I ever use tobacco again I faithfully promise to pay you for it.

England, Pa., Mar. 11, 1887. S. B. POST.

I am glad to say I have stopped the use of tobacco entirely, and hope nothing will make me take to using it again. If you think me entitled to a smoker, please send me one; and if I return to smoking I will send you the price for the same.

Abbeville, S. C., March 13, 1887. D. W. THOMAS.

I have recently quit the use of tobacco, partly through the influence of GLEANINGS and partly because I found it to be injurious to me. If you think I am worthy of a smoker, send me one and I will pay for it if I ever use tobacco again.

JOHN FRANKLIN.

Round Rock, Texas, March 14, 1887.

My father quit the use of tobacco after using it many years. The last time I saw him smoking was some time last summer. If you send him a smoker he will pay you for it if he ever uses tobacco again. He is 76 years old, and has 15 swarms of bees.

J. S. NORTON.

West Ferndale, Wash. T., Mar. 8, 1887.

Miss V. M. Smith, through the influence of GLEANINGS, has been induced to give up the use of tobacco, and requests me to ask you to send her a smoker, for which she agrees to pay if she uses tobacco again in any form.

D. W. MOSS.

San Augustine, Texas, Mar. 29, 1887.

A CHEWER FOR 45 YEARS.

I have been chewing for about forty-five years. Last November, about the 18th, I quit chewing. If you think you can send me a smoker, I shall be much obliged to you; and if I commence chewing again, I will pay you full price for it.

Lectonia, O., Feb. 21, 1887. J. BRINKER.

I am a reader of GLEANINGS. I have been a chewer of tobacco almost from childhood. I have made a solemn vow never to use it again. I have bees; and if you think I am entitled to a smoker, please send it, and I pledge myself to you that, if I ever use tobacco in any form again, I will send you the price of the smoker.

J. B. MOUR.

Lafayette, La., March 12, 1887.

My son-in-law has used tobacco 24 years, and I have tried to get him to stop its use, but all in vain. I saw in GLEANINGS that you were giving smokers as a premium where they would abstain from its use. I went at him again finally, and have succeeded in getting him to promise. If you would send him a smoker, he would stop its use. He hasn't used any in 3 or 4 weeks. If he ever uses it again he says he will pay for the smoker; and if he doesn't, I will if I am living. But he is an honest man, and will pay it.

R. H. ALLEN.

St. Louis, Mich., Feb. 14, 1887.

AN INJURY TO THE HEALTH.

I have been in the habit of smoking, and do believe it to be an injury to my health. If you feel willing to send me a smoker by mail I will give you my word that I will not use tobacco any longer in any way. I am not saying this merely to get a smoker free, but I mean all I say.

Cleveland, Ga., Feb. 12, 1887. J. C. KENIMER.

A BINDING PLEDGE BETWEEN HUSBAND AND WIFE.

I have been a reader of GLEANINGS for seven years, and have read every word of every number that I have received. I have been trying to get my consent to quit using tobacco ever since I read your first number. I have been praying over the matter, so the other day my good wife said to me, that if I would quit the use of tobacco she would not use any more snuff, so I accepted her proposition, and expect, by the help of God, to keep my promise. Now, if you are willing to send me a smoker you can do so; and if I ever commence the use of tobacco again I will pay you for it.

Covington, Ga., March 21, 1887. J. F. MCCORD.

ABRUPTLY QUIT.

I see that you offer a smoker as a premium to any one who will abandon the use of tobacco. I have been a slave to the use of tobacco for 15 years, and it is injurious to my health. Your offer has induced me to for ever abandon and abruptly quit the use of tobacco in any form. Now, as I am beginning to raise bees to some extent you will please send me a smoker; and I solemnly promise that, if I ever take up the use of tobacco again I will pay you the full price for the smoker. I am responsible for what I say.

B. G. LUTTRELL.

Luttrell, Ala., Mar. 1, 1887.

QUIT PAYING THE NATIONAL DEBT BY GIVING UP TOBACCO.

I take great interest in reading GLEANINGS. I have read and re-read your A B C book until I have it almost learned by heart; but I have had bad luck with bees this past winter. I lost five out of twelve.

I think that I am entitled to a smoker, because I was one myself for 27 years. I smoked in that time about 700 lbs. of tobacco, and the U. S. internal revenue on the same has been quite an item in the reduction of the national debt. I would as soon go to the gallows as to commence smoking again, as I find that I feel much better than I did when I smoked the filthy weed.

S. W. TAYLOR.

Harveyville, Pa., April 5, 1887.

A LETTER FROM ONE WHO HAS INDUCED THREE OF HIS FRIENDS TO GIVE UP TOBACCO.

I have a young friend who is becoming somewhat interested in bee-keeping, and I told him you would give any one a smoker who would quit using tobacco, and promise not to use it again. He says he will promise to quit, and will not use it any more; and if he should he will pay for the smoker. Please send him one, and I will vouch for him. He makes the third one who, with your help, I have induced to quit using the vile weed, and they have so far stuck to their promise. I am always on the watch to induce others to quit using whisky and tobacco, as I think they are two of the worst habits a man can contract.

C. W. PLENT.

Stanton, Ala., March 21, 1887.

Many thanks, friend P., for so kindly helping along the work in the Tobacco Column.

OUR HOMES.

Blessed are the pure in heart; for they shall see God. —MATT. 5: 8.

BEFORE I tell you of my very pleasant visit to Professor Cook and his family, I want to say that it has been characteristic of the professor to rebuke gently but firmly every thing in the line of which I talked to you in *Our Neighbors*, in the last issue. The first time I ever met Prof. Cook, or, at least, the first time I ever had a chance to have any confidential talk with him, was when we visited an old bee-keeper in the neighborhood of the Michigan Agricultural College. In telling something, I related a common phrase of expression. He stopped right in the road to give emphasis to his remark, and asked me if it would not be better to forbear making such speeches.

"But," said I, "it is the truth, is it not?"

His reply was something like this:

"Mr. Root, it may be true; but even if it is, I don't believe it is best to speak it. If we do every thing in our power to encourage the idea that the world is not depraved and low-minded, will it not help the world to be better?"

His talk was, in effect, something like this: If you tell a boy he is a thief, and that you don't expect any thing better of him than a thievish disposition, you help on in that very line. If you tell him you have confidence in his word, and are not afraid to trust him (within the bounds of reason, of course), is it not true that the chances are greatly in favor of helping the boy to be a good deal better boy? Well, a great many times when we shock people by telling something very bad, we reply, "Why, is it not true?"

Now, I heartily agree with Prof. Cook, that the truth in such cases had better not be told. When I sat in the hotel and listened to the indecent talk of those two young men, my mind reverted to Prof. Cook, and I wished that he were there with his weight and influence, and especially his kind, genial way toward sinful humanity, to rebuke these boys in a way that would do them good. May be he would have had to give up the task and take another room as I did; but I do know, however, that he has all his life been in the habit of rebuking faithfully and fearlessly friends and foes alike, whenever they need reproving and rebuking.

I hope the professor will excuse me for relating one little circumstance; and if I don't get it just as it actually occurred, it will be near enough to carry the moral with it.

In his younger days he was once called upon to ride in a stage-coach with quite a lot of distinguished men—members of Congress, and others who stood high in office and in places of trust and intelligence. They began indulging in impure jokes and talk, of which they should have been ashamed. He bore it for a time, but finally ventured a remonstrance. There were so many of them, however (and he was then only a boy), that they tried to turn the joke

back on him. He finally told them firmly that he would stop the driver and get out unless they would stop the kind of talk they had been indulging in. One of them remarked, "If the boy can't stand it, let him get out." If I am correct, the driver was told to stop. When he asked what the matter was, our young college student told him he wished to get out and go on afoot, unless he could have a guarantee from the gentlemen present that the kind of talk they had been indulging in should be stopped. By this time some of the better ones began to come to their senses; and one who had weight and influence declared that the boy was right, and desired the driver to go on, saying that he himself would guarantee that there should be nothing more improper or out of place.

Friend Cook, in speaking of it, said that, when he was a boy at home on the farm, one of the rules that he had laid down himself was to say nothing or do nothing under any circumstances that he would not say or do in the presence of his mother; and when he became a married man, and had a queen of his own to rule his household, he decided that nothing should pass his lips in her absence that he would not say in her presence. And in all my acquaintance with him I can not remember that I ever heard a speech or word that he would hesitate to speak, were she or their two children present.

I have spoken to you many times lately, dear friends, about being acquainted with people, and it has lately occurred to me there is many times great need that fathers and mothers should be acquainted with their own children. Well, the acquaintanceship with different members of the family in Prof. Cook's household is closer and warmer than in any other family relationship I ever saw before. Not only are the husband and wife one in every sense of the word, but the children, Bertie and Katie, are one with father and mother. Papa and mamma share all their plans and pleasures and tasks, and the children, too, know all about papa's and mamma's work. Young as they are (about ten and twelve, if I remember rightly) they are prepared to understand and commend almost any able effort their father may make in his literary work. They share with him most fully in his labors for the uplifting of the people. The sentiment of this entire household seems to be a hungering and thirsting after righteousness; and their lives seem to be a prayer that God's kingdom may come, and his will be done on earth as it is in heaven.

In the *Home Papers* of a month ago I spoke about letting the children get acquainted with the neighbors' children, even if the latter were not all they ought to be, and one of the friends has taken me to task for so doing. I did not talk with Prof. Cook directly in regard to this matter, but I am pretty sure he agrees with me in the effort to have our children brought up so as to be pure in heart, according to the text at the head of this talk. I think we should be careful about going to such extremes that they know nothing of the evil that is in the world; yet I would by no means go so far as

some recommend, and push the children needlessly into scenes of vice and sin, but I would endeavor to so fortify them in the home circle that they may go safely wherever it may be convenient to have a child go. There are parents here in Medina who have kept their children away from school because of the bad boys and the bad talk they learned at school. Now, I think they made a mistake. Sooner or later every boy and girl is obliged to meet more or less evil. I should say, let them meet it when it can not well be avoided; but prepare them for it beforehand, and strengthen them during the trial. Tell them of the responsibilities that rest upon Christian people; tell them of the great harvest, and of the comparatively few laborers. Pray for them as Christ prayed for his own when he said:

I pray not that thou shouldst take them out of the world, but that thou shouldst keep them from the evil.—JOHN 17:15.

Bertie and Katie are by no means ignorant of the great problems that lie before us as a people and as a nation. On our way (from Owosso to Lansing where Prof. Cook's farm and sugar-bush are), something occurred to illustrate this. We were riding on the cars, and a drunken man took a seat right back of Mrs. Cook. As the cars were crowded, our little band was somewhat separated. The drunken man commenced to utter oaths and blasphemy; and as no one noticed him he finally proceeded to obscenity. Prof. Cook has decided, as I have, that it is useless to talk to an intoxicated man. You might as well try to remonstrate or reason with the father of evil himself. Mrs. Cook was obliged to take another seat. This crowded a little upon a couple of fast young men. They occupied one seat while their overcoats and luggage were in the one opposite. In answer to Prof. Cook's inquiry, they replied that the seat containing their luggage was occupied, giving him to understand that somebody else had the seat who would be in presently. I saw their trick, however, and so did the professor.

"My friends," said he, "you are entitled to the seat you are sitting on, but not to this other one. I know my rights; and if you mean it is occupied because it contains your luggage, I shall have to ask you to vacate it."

He said this firmly, but with perfect kindness. One of them finally rose up, with the remark, "Well, now look here, friend; if you won't get into a passion we will give you *both* seats."

The remark about getting into a passion was entirely uncalled for, as Prof. Cook did not show the least trace of disturbance of any kind. While he calmly assured them he never got into a passion at all, one of them remarked:

"We will take our cigars, and go into the smoking-car; and when we have smoked three or four cigars apiece, and have had a couple of glasses of brandy, we shall be in just the trim to deliver a prohibition lecture to these people, if they want one."

As he spoke I caught sight of a flask of some kind of liquor in the side pocket of one of the overcoats. The young men by some

means correctly inferred that our little party were of the class who accept the promise in our text, to those who are pure in heart, pure in speech, and pure in their habits. The last speaker, thinking he had said a funny thing that ought to be applauded, turned to me as he finished the speech. I replied, "My friend, I come from the State of Ohio. Now, is it really true that up here in Michigan those who give lectures on prohibition first fortify themselves with whisky and tobacco?" He was, for the time, evidently taken back a little, but then replied, "Well, stranger, that is just about what it amounts to."

I felt obliged to him for having coupled tobacco and whisky so closely together. Is there not something significant about it? And, again, our gibbering, bleary-eyed neighbor who was too drunk to be decent, on the seat adjoining, furnished us another link. Obscenity and filthiness belong to whisky; and so it transpires that tobacco ultimately leads not only to filth in habit, but to filth in thought.

Would you like to know something about the way this little household is carried on? I presume friend Cook will excuse me if I tell a little about their daily home life. I know he will when he considers that I do it only that it may give suggestions and possible helps to other homes. The morning service is shared by all. Each one has a Bible as well as a hymn-book. By the way, I do think a morning hymn is a grand thing to commence the labors of the day. Well, the Bibles and Testaments at Prof. Cook's were German in one column and English in the column right beside it, verse to verse. All four members of the family read a verse first in English and then in German; and I was astonished to hear ten-year-old Katie give the German accent in her childish voice as easily, almost, as if it had been her mother-tongue. Although she is younger than her brother, her womanly wit grasps a good many things quicker than he does. This confirms me in my idea of woman's fitness for business. Well, why do you suppose the whole family are learning German? I will tell you. Prof. Cook has taught regularly in the college for something like twenty years, without respite or rest, except his vacations during the winter; and even during these winter vacations he works harder, a good deal of the time, at our agricultural colleges in Ohio, New York, Wisconsin, and other States. They are talking of having, in a year or two, a two-years' vacation, and they are going to travel in Germany and other countries of the Old World. The children are as enthusiastic about the vacation in Germany as are the father and mother, and this is why they are pitching into German with such energy. You must not think that this boy and girl are little men and women, for they are just as childlike, and just as full of childish pranks, as any other children, and they sometimes beg to be excused from their lessons and work. Mamma and papa both have to remonstrate and urge, occasionally, just as they do in all homes; but notwithstanding all this it was a rare treat to me to find children of their age so fully posted in re-

gard to general matters of life as were these two. A little picture on the sideboard shows the face of one that was in this household, whom God has called away; but the whole atmosphere of this home is a trust in God, and a reverence and respect for the great Creator of this vast universe, that has given me a lift upward as well as onward that I trust I shall not soon forget.

A great problem lies before us—How shall we manage to have the children of our homes pure in heart? How shall we contrive to have them grow up pure in heart? In the first place, my friend, do as Josh Billings recommended—walk in the path yourself in which you would have your children walk. When you are tempted to be selfish, when you are tempted to relate an impure joke, when you are tempted to do something in the dark that you would not do in broad daylight, consider, first, “If the little ones of my home were right before me, would I do this?” You may be surprised somewhat, my friends, but the above plan has been of great help to me indeed. I once labored about an hour with an intemperate man. He had always been a drinking man, and he declared his purpose of continuing so. When I had got as far as the door, thinking I should have to give up the task, I turned to him once more. “My friend, you say you have been drinking intoxicating liquor all your life, and you propose to go ahead so long as God lets you live—drinking when you please and all you please.”

He frankly declared I had stated just about the truth of it.

“Well,” said I, “friend B—, do you desire to have your boys grow up in just that way?”

He did not answer. I repeated it with more emphasis. When forced to reply, he said, with an evident softening in his tone, “No, Mr. Root, I do not want my boys to grow up to be drinking men.”

Now, then, whatsoever you would that your own boys should be and do, do just that yourself. Set a good example before them, not only when their eyes are upon you, but in the darkness of the night, when no man is near. Do that which you would do were those inquisitive little eyes present; and in the deep recesses of your own heart let no thought get much of a lodgingplace that you would be ashamed to have the little ones look upon. I know it is a hard task; but I know, my friends, it can be done, through the grace of Christ Jesus.

One more word about keeping our children from contamination and evil. We can not get good vegetable plants by greenhouse culture. They must be put outdoors, and gradually get accustomed to the winds and frosts. They must be hardened by exposure before they can be of service. If our children are going to be of use to the world, they must know the world. At one time the schools in Medina were so exceedingly bad that it became a question as to whether it were wise to send the small children. Even our boy Ernest learned to swear before we knew it. The boy he was most in the habit of playing with took the name of God in

vain almost constantly. What was to be done? This was even before I professed to be a Christian. Ernest's mother had to bear the load all alone. She went to her Bible for help; she took the boy into her room and there alone talked with him. She followed him with her prayers when he was absent, and she questioned him about his associates and pastimes and amusements, when he got home. She let him go for a stated period to play with the bad boy over at our neighbor's; but before going he promised her to come back in exactly one hour; and, furthermore, he promised to come home at once unless Edson would stop swearing. He came home repeatedly. Finally Edson called out to him from the street:

“Hello, Ernest! If you will come out and play, I won't swear a bit while you are around.”

For a time Edson would forget; but by and by he played whole hours, and did not swear. Edson is a better boy for having been Ernest's particular playmate, and I don't know but that Ernest is a better boy for having had Edson for a playmate. When he got older, worse things even than blasphemy were brought to his childish ears; but, may the Lord be praised, the close acquaintanceship between himself and his mother, brought about mainly from the fact that his mother had pulled him through these other things, kept him safe from contamination. He told his mother about things he had heard, and his mother fortified and strengthened him against these new evils. He talked with her frankly about things that mothers often feel as if they could not talk about to their grown-up boys.

Dear fathers and mothers, may I suggest a thought to you here? The growth of the vegetable world is a wonderful thing. The germination of seeds is, to every child, intensely attractive. The little downy chickens that come from their shells, in obedience to the instincts and care of the mother bird, are a never-ending wonder and attraction to the little ones of your household. Now, if you can talk with them about these things, and explain to them the wonders of God's creation, as seen in the sprouting of seeds and the bursting of egg-shells, can you not, when these same juveniles are a little older, tell them of the greater wonders that pertain to the matter of human life? God will guide you and give you wisdom and discretion in these matters, if you go to him prayerfully and go to him with your Bibles. Who but a father or mother is so well fitted to explain these things pertaining particularly to this matter of father and mother, and their relationship to the human family? Inasmuch as the Bible does not hesitate to speak of these things plainly, it seems to me that every parent has not only a right, but it is a sacred *duty* before him; and this duty should be taken up whenever the child is able to read God's sacred word understandingly. And, dear friends, is it not possible that this plain, frank way with your children would do much toward preventing them from getting hold of foul language and impure words? Where did those boys whom I overheard in the hotel

learn all this? Surely not from father nor mother.

While speaking about letting children play with neighbor's children, a friend made the remark that evil many times comes from letting the children make too long visits. Let them go for an hour, or half an hour, perhaps, and be sure that they are taught to be prompt and punctual. Be very careful about letting them go away to stay over night. The parents should know exactly when the children retire to rest, and, above all things, the company they are with at such times. Some poor woman may say, in despair, "How can I, with all my cares, keep such unremitting watch as all this demands?" Dear mother, what is the most important commission that God has ever placed upon you? Is there any duty or any task in life that comes any thing near being so important as this one of bringing your children up in such a way that they shall be pure in heart? Those that are pure in heart shall see God. To them is this promise given, and to none others.

REPORTS DISCOURAGING.

A LOSS OF 18 OUT OF 21 DURING WINTER; WHAT KILLED THEM.

IF you really long for some "reports discouraging," I can furnish you with at least one such. If I do not take the "first premium" I shall at least hope my chances for second are very fair in the line of poor success, or, if you please, "awful bad luck," during the past winter. And if you can "help us out of our trouble," as you intimate your ability to do, it will be some compensation for the "doleful story" of my last winter's experience.

I prepared for winter, as early as Nov. 1, 21 colonies, rather stronger than usual. I packed in dry leaves, and covered with carpet two or three thicknesses above, and with sufficient honey, as I thought, said good-by to them for the winter. I did not say farewell for ever, for I thought we should meet again when the "flowers that bloom in spring" should entice them and myself from our winter quarters. But we didn't. Eighteen out of that possible 21 have gone to gather nectar where "everlasting spring abides, and never-withering flowers." At least they have "gone dead," *awfully* dead, and will never again visit any flowers here. "How did it happen?" you say. Well, I wish you would tell me. That is just what I want to find out. If I can, and you thus help me out of my trouble, perhaps I may be able next winter to save more than one out of seven; that is, if I can hope to increase to so numerous an apiary from my remaining trio of brave survivors. Now don't put me in Blasted Hopes. I am not there at all. I am not even discouraged, for—well, haven't I three colonies left? and I dare say that is three times as many as some poor unfortunates can boast who last fall were beginning to calculate what investments they would make of the profits of this year's honey-crop.

I presume you are inquisitive enough to wish to know what manner of hive to attribute this loss to. Well, I use three kinds of hives—the Chaff Eclectic,

the American, and a nameless hive made by a neighbor by the name of Pierce, and I call it, hence, the Pierce hive. It holds six frames, and is very deep—18 inches by 10. My three surviving colonies were in these hives. I am credulous enough to think that the depth of these hives had something to do with the safety of these lucky little fellows—especially as in past winters my losses have been chiefly in shallow-frame hives—Simplicity, etc.

One other circumstance I ought to mention, and that is, that I had my bees on the north side of a board fence, and facing north. Did that have a necessarily fatal effect? I have wintered that way before. Do you ask why? Simply because I do not own the south side of that fence. If I did I would put them there.

Tell me all about the reasons for my "awful bad luck" the past winter, if you can. J. F. PATTON.

New York, May 4, 1887.

Friend P., while I should hardly think that putting bees on the north side of a fence would be fatal to them. I should call it a rather unfavorable location. While reading your letter I was wondering if there were not some starvation about it. You say you left them with sufficient honey, as you thought, but you don't tell us how much was left when you found them dead. I can not tell you where the failure came in, as you state it; but I do think, that if you put up your bees in chaff, packed as we describe in the A B C book, you can succeed in wintering as well as others do.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

BEES IN NICE CONDITION.

OUR bees are in splendid condition, and I think I never saw more brood in the hives at this time of year than now, although the spring is a little late.

These young bees have come in at just the right time, for we notice that the old bees which withstood the hardships of winter so well are now becoming scarce. So far we have not fed, as we desire to let the bees clean out their combs entirely of all remnants of honey fed from last fall and summer. A little later, if apple-bloom should not furnish us honey enough we will feed.

It is over six weeks since we have had a case of foul brood; and if you could look into the condition of our colonies, and see the clean healthy brood, and the number of young bees, I believe the most skeptical of you would acknowledge that, so far as appearances are concerned, we have fully eradicated the disease.

So confident do we feel that we have cured foul brood, that we have decided to put the two loads of bees from friends Rice and Shook into our home apiary. We now have 240 fair colonies, with brood and young bees in all stages of development. I believe we never had a nicer lot of bees, or as nice-looking queens as now, and we certainly never had brood more healthy-looking. Unless some of our customers object, we will fill

orders for bees and queens from the home apiary. All those of you who may see fit to place with us your orders for bees and queens, we feel sure need not fear trouble from foul brood, as certainly the disease would have made itself manifest ere this had there been any trace of it. Those of our customers who would prefer not to have their orders for bees and queens filled from our own apiary, can have them filled from Neighbor H.'s apiaries by so stating at the time of ordering. I believe it is an axiom among those who have had to do with foul brood, that the disease can not be communicated from bees and queens when shipped in cages.

Remember, we are selling bees by the pound for just half what we sold them for last year. We did not bring the price down because we thought the bees were any less valuable, but because we thought our former price of \$2.00 a pound in the month of July was rather too high for those who were desirous of economizing. A few years ago, when we put the price of bees up, we had been sustaining heavy winter losses, and we felt that we could not therefore furnish bees then at a dollar a pound in July; but for the past four or five years we have wintered bees without any loss to speak of; and with 200 or more good colonies to begin with in the spring, we decided that we could easily return to our old prices—\$1.00 per pound for nice young Italians in July and after, and a corresponding increase during the cooler months of the year. For this month our price is \$1.50; next month, \$1.25 per lb.

APIARISTS' HATS.

We have just received a consignment of those nice light summer hats for apiarists, such as was illustrated on page 1001, last year, and described on page 30 of current volume. The covering of said hat is cloth of a light drab color. The brim is held out in position by a light steel hoop. The inside of the crown is so made that it is adjustable, and will fit any head. The lower side of the brim is covered with green cloth. When the hat is on the head, it feels so light and easy that the wearer scarcely knows that he has any covering at all over his pate; and the green color on the under side of the brim has a kindly effect upon the eyes. I have tried quite a number of hats in the apiary, and the one answering the description above is the one I very greatly prefer to all others. I know of no hat that is better adapted for holding the veil away from the face, and I think the apiarist who will give this hat a trial for one season will not wish to go back to the unsightly, uncomfortable, and often ill-shapen straw hat. We can furnish the apiarist's hat folded in a neat package for the small sum of 20 cts. each; 10 for \$1.80; postage, each, 2 cts. extra.

JERKING THE HANDS BACK AWAY FROM THE TOP OF THE FRAMES.

The other day, as I was passing through the apiary I noticed one of our new men jerking his hand nervously away from the top of the frames. I surmised that a bee had bumped against his fingers, with the apparent intention of inflicting a sting. When

I reached him I found that I was correct. I told him to try holding his hand perfectly motionless the next time a bee darted forth and bumped against his fingers. It might require some nerve force, but that if he would try holding his hand still and let the bee know that he was not afraid of it, there were ten chances to one that it would not sting him. He did as I told him, and afterward reported that it worked as I had said. I give this little fact, not for the benefit of the veterans, but for beginners and A B C scholars. You will save many a hard sting by holding your hand perfectly still when one or perhaps a dozen bees strike against your fingers. When you notice the tendency on the part of the bees to dart out that way you should give them plenty of smoke over the top of the frames; and as often as they try to scare you, give them a little more smoke.

CROSS HYBRIDS.

On the 11th of May we purchased four colonies of a farmer residing some two miles from our place. When the bees arrived I told the boys to take out the frames and place them in our Simplicity hives, as they had done with the forty other colonies purchased of friends Rice and Shook. Not suspecting any trouble, I went into the office and was seated composedly. In about half an hour, father came in and said, "You had better go out and see what the boys are doing. The bees are pretty cross. Find out whether there are any pieces of brood or honey broken and lying around." I went out to the apiary immediately. I made my way directly to the spot where the boys were taking the combs and placing them in the Simplicity hives. As I neared the place Mr. S. called out, "Better put on a veil before you come here." I needed no second caution. Taking a roundabout course I went to the house-apiary and procured a veil. On coming up I found that the bees were indeed, to put it mildly, "awful cross." There were perhaps 200 of the little scamps flying around the heads of all three of us, giving that angry hum such as is heard from all cross hybrids. I found there was nothing particularly wrong, only that the bees had not been handled before for a year or more; that being hauled a couple of miles and then stirred up they were determined to vent their spite right liberally. I told the boys that they had better desist for the present. On looking over toward my house which is in process of building (some 300 feet away) I noticed one of the masons striking wildly in the air as if mosquitoes or some other small insects were disturbing his peace of mind. I began to conclude that those vicious hybrids were not content with buzzing around our heads, but were so considerate as to call upon the masons. I immediately went over and inquired whether the bees were bothering them. They replied that they had killed a dozen or so "of them 'ere pesky little pioneers." Not content with bothering the masons they attacked one or two horses on the street, and even entered our saw-room amid the hum of machinery.

Right here, while I am about it, I believe

I have said I didn't care to use a veil. I rarely ever have occasion to resort to their use; but I must confess, that if I had such hybrids as these, and so strong in numbers, I should consider a veil one of the indispensables.

OUR HONEY APIARY.

We have definitely located our Honey Apiary some five miles south of Medina, and we expect to do some wonderful things in that apiary this summer. "Me and my wife" drove down there last week and completed arrangements.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

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MEDINA, MAY 15, 1887.

He that endureth to the end shall be saved.—MATT. 10:32.

T TINS—NUMBER SOLD UP TO DATE.

SINCE the first mention of T tins on page 156, current volume, the foreman of our tin-room informs us that we have so far made 36,000. This makes about 12,000 a month; and the demand, instead of decreasing, seems to be increasing.

MR. THOMAS HORN.

As quite a number of the friends have complained that they have not yet received their notes, as promised by Mr. Horn, on page 111, we wrote to him in regard to it, and here is his reply:

FRIEND ROOT,—I mailed, as promised, all notes excepting a few retained for further investigation, which I have since mailed; and now to the best of my knowledge all have their notes. If I have overlooked any, if they will kindly inform me I will mail them at once.

THOMAS HORN.

FIGHTING THE POTATO-BUGS.

TO-DAY, May 14, our Early Ohio potatoes that were started in the greenhouse are almost knee-high, and are doing splendidly, but the bugs are going for them to such an extent that one of the boys picked 34 off from one stalk. Our potatoes grow as stalks, remember, and not in hills. I have just written to friend Terry to know if I shall keep a boy picking the bugs off, or go back to the old-fashioned way of using Paris green.

TOTAL LOSS BY FIRE.

THE following letter from our friend Dr. J. P. H. Brown has just come to hand, which will explain itself:

I have just had the misfortune to-day of having my residence burned, including all my books, letters, and correspondence. I shall be much obliged to you if you will say that I will esteem it a favor if my customers will please send me at once their address, including a repetition of their orders. All orders will receive prompt attention. The loss of the house including its contents, is fully four thousand dollars, and no insurance. We could not save a thing out of the house, as the wind was blowing a gale.

J. P. H. BROWN.

Augusta, Ga., April 29, 1887.
Friend B., we extend to you our sympathy. We have no doubt, however, that you will be able to meet all your obligations.

PROF. BEAL'S NEW BOOK, "THE GRASSES OF NORTH AMERICA."

THIS is perhaps the most thorough and comprehensive work of the kind in the world. It is just from the press, and covers the whole ground most thoroughly, including the entire clover family as well as the grasses. Prof. Beal's clover-garden was one of the most interesting sights to me at the Agricultural College when there some years ago. He had a little plot of all the clovers known in the world; and near by were plants not exactly clovers, but nearly related to them, such as peas, vetches, etc. Among the subjects treated of in the book are Grasses for Cultivation, Grasses for Meadows, Care of Grass Lands, Making Hay, Grass for the Lawn, Garden, and Decoration; Enemies of Grasses and Clovers; the Fungi of Forage Plants, including corn-smut. Weeds in the Meadow is a department that interested me greatly. The price, \$2.50, may be thought by some a little high; but it is a most thorough piece of work by a most able man. There are 457 pages, and the book is fully illustrated, for the most part excellently. We can mail it on receipt of price given above. The author is professor of forestry and botany in the Michigan Agricultural College.

CAN BEES BE MADE TO HIBERNATE?

SINCE our article on page 343 was published, in regard to the secret possessed by the Indians, of keeping bees from fall to spring in a dormant state, several communications have been received—one from Mr. C. E. Jones, of Delaware, Ohio. Mr. Jones says that an old missionary assured him that he had buried bees in dry dirt, after causing them to fill themselves with honey, and kept them till spring. Friend Jones himself has experimented with bumble-bees in this way, and thinks that, because he succeeded with the latter, it might be done with honey-bees. Of course, this is a mistake. For years past, different individuals have told about bees that were brimstoned, and buried in the ground, but when dug out in the spring (by accident, of course) they came to life and were as good as ever. Now, while there may be truth in these oft-repeated assertions, I very much doubt it. When these statements are sifted it turns out that somebody else did it besides the narrator. If, however, there is a man who has buried bees in dry dirt, and kept them months, and afterward brought them to life, we shall be glad to know it. And when such an individual shall go to work and demonstrate it before good witnesses, we will then give up that bees can be made to hibernate. Now, don't feel hurt, any of you, dear friends. We are not doubting anybody's word. We are only asking for accurate facts in the matter.

HUTCHINSON'S NEW BOOK.

THERE have been some criticisms sent in, in regard to this work. It is true, friend H., in the book, invites the freest criticisms; but some of them are not in as courteous a spirit as they ought to be, to find place in a periodical. On page 233 of the *American Bee Journal*, Prof. Cook quotes me as follows:

"I read Mr. Hutchinson's new book on comb honey, as I came here. It is so good that I have only one criticism—it is too short."

It is true, I did say that, or something very much like it, but I also added, or, at least, intended to add, that I should give it the same criticism I did Dr. C. C. Miller's new book—the absence of engravings to make matters plain. A busy man like myself could

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The one pictured seems to please us best of all for working in the apiary; and another thing that pleases me is that it costs for the 10 inch, only \$5.00; 12 inch, the standard size, \$5.50, and the 14 inch, \$6.00. The 10-inch one runs a little easier, of course, and it may therefore be preferable for a lady or for a child. Its simplicity is an advantage in the apiary, for it will run up close to the entrances, and it will cut weeds and grass of a considerable height without difficulty. We can furnish them promptly at the prices named. As the machine weighs but 50 lbs., it will probably go cheaper by freight.

A. I. ROOT, MEDINA, OHIO.

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ON 30 DAYS' TRIAL.



THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the Intestines just as a person lies. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

1-124b

Fine Premium Italian Bees.

My queens and bees were awarded first premium at the late Chenango Co. Fair. All interested, send stamps for sample of bees, also for my new price list and circular to suit the times, and method of rearing fine queens. Untested queens, \$1.00 through the season. Tested, \$1.50. **Mrs. OLIVER COLE,**
 Sherburne, Chenango Co., N. Y. 6tfdb

QUEENS.

Untested Italians from choice mother, from May 15, \$1.00 each. **DAVID STRANG,**
 9tfdb **Lincoln, Lincoln Co., Tenn.**

ITALIAN QUEENS. WARRANTED TO
GIVE SATISFACTION.
 TESTED, \$2.00; UNTESTED, \$1.00, after May 15, 1887.
 8d **R. W. TURNER, Medina, Ohio.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

C. F. Uhl, Millersburg, Holmes Co., Ohio.
Martin & Macy, N. Manchester, Wabash Co., Ind.

RUBBER STAMPS

DATING, ADDRESSING, BUSINESS,
 LETTER HEADS, ETC.



No. 1.



No. 3.



No. 2.

Address only, like No. 1, \$1.50; with business card, like No. 2, \$2.00; with movable months and figures for dating, like No. 3, \$3.00. Full outfit included—pads, ink, box, etc. Sent by mail postpaid. Without ink and pads 50 cts. less.

Put your stamp on every card, letter, paper, book, or anything else that you may send out by mail or express and you will save your-

self and all who do business with you a "world of trouble." I know, you see.

We have those suitable for druggists, grocery-men, hardware dealers, dentists, etc. Send for circular. **A. I. Root, Medina, O.**

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free.
4tfdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange Barnes foot-power saws and bees, for steam-engine, honey, or beeswax.
7-12db C. W. & A. H. K. BLOOD, So. Quincy, Mass.

WANTED.—To exchange eggs from Bronze Turkeys, Pekin Ducks and Langshan Chickens, for Italian queens, or offers. Our stock is first-class.
E. W. PITZER, Hillsdale, Iowa. 9-10d

OFFERED, dry goods in exchange for bee-keepers' supplies, pure breed pigeons, fowls, pheasants, or their eggs. Please state wants, and what you have to offer, with prices. Samples on application. WALTER SHERMAN, Newport, R. I. 10d

WANTED.—To exchange 15 Simplicity hives (2-story) half comb and half foundation, all in good condition. Make us an offer.
10-11d J. D. HALSTED, Rye, N. Y.

WANTED.—To exchange a duleimer for two 3-frame Italian nuclei. Write for particulars.
10d M. GUMBERT, Ohl, Jefferson Co., Pa.

WANTED.—To exchange for brevier or long-primer body-type, job type, etc., or for newspaper press, a \$100 photo outfit and 5 tubes.
10d W. A. KALER, Andersonville, Ind.

WANTED.—To exchange, Winchester single-shot rifle, cal. 45.75, warranted in every respect, all most new, for any useful article. If desired, I will forward this rifle to you for inspection.
10d ROBERT GEDYE, La Salle, Ill.

WANTED.—To exchange a trio of fine Wyandottes or Light Brahmas, one year old, bred from my prize strains, for a good buffalo-robe. Must be a No. 1, as fowls are select.
10d CHAS. MCCLAVE, New London, O.

WYANDOTTE and Houdan eggs or birds in exchange for bee supplies; see adv't in another column. JAMES EVANS, Box 89, Schaghticoke, N. Y. 10tfdb

FOR SALE.—A complete apiary of 140 colonies of fine premium bees in a never-failing locality. A bargain, if called for soon. My bees and queens were awarded first premium at the late St. Louis Fair, St. Louis, Mo. Address at once, L. WERNER, Edwardsville, Ill. 4tfdb

For Sale. 100 colonies of Italian bees. From \$5.00 to \$8.00 per colony. Tested queens, in May, \$2.00; after June 1, \$1.50. Untested queens, in May, \$1.00; six, \$5.00; after June 1, 75c.; six, \$4.00. Also bees by the pound; 2 and 3 frame nuclei; hives, sections, fdn., etc. Circular free.
5-16db Address JNO. NEBEL & SON, High Hill, Mo.

500 LBS. FOUNDATION, 35 Cts. per pound; 5 to 7 feet to the pound. First orders first served. Sample free.
10-11d S. & A. M. SMITH, Mattoon, Illinois.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfdb

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—Five mismated Italian queens to spare, at 50 cts. each, reared from pure Italian mothers. Write soon if you want them.

CHAS. MCCLAVE, New London, O.

FOR SALE.—About 10 hybrid queens, at 40c. each, by return mail.

G. D. BLACK,
Brandon, Buchanan Co., Ia.

I have 3 mismated Italian queens, of this year's rearing, for sale at 35c. each, or the 3 for \$1.00.
A. P. STAIR, Whitney, St. Clair Co., Ala.

I have about 12 black queens to spare—one and two years old; prolific layers; 25 cts. each; or 5 to one address, \$1.00. LUTHER PURDY,
Killbuck, Holmes Co., O.

SEE HERE!—60 black and hybrid queens for sale; are good laying queens, nearly all young, and are sold to make room for Italians. Ready now. Satisfaction and safe arrival guaranteed. Return all dead queens in same cage; all clipped. Price 30 and 45 cts. L. T. AYERS,
Box 657, Kankakee, Kankakee Co., Ill.

I have five black and 10 hybrid queens that I will sell for 20 and 30 cts. respectively, or the whole lot for \$3.00, ready by May 20. W. H. LAWS,
Lavaca, Sebastian Co., Ark.

Hybrid queens, reared from select tested Italian mother, for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. GEO. W. BECKHAM,
8-9 10d Pleasant Hill, Lancaster Co., S. C.

Black and hybrid queens at your own price. First come, first served. D. M. KENZIE,
Camp Parapet, Jefferson Parish, La.

HARRINGTON'S AD.

I have a fine lot of tested queens; will sell them in the month of May at July prices:

SELECT TESTED	\$3.00
TESTED	2.00
UNTESTED, After May 20	1.00

Holy Land and Albinos same price. If you wish something fine give me a call. I never had a case of foul brood. My two apiaries are located 3½ north and 2 miles south respectively in a bee-line from the Home of the Honey-Bees. ttfdb

H. B. HARRINGTON, Medina, Ohio.

Pure Italian BEES For Sale.

30 COLONIES, AT \$5.00, \$6.00, AND \$7.00 PER COLONY,

In Langstroth frames and latest improved hives, for section boxes or extracted honey.

JAMES CRAIG, - Mt. Meridian, - VIRGINIA.
8tfdb

PURE ITALIAN BEES FOR SALE.

Two-frame nuclei, \$3.00; 3-frame, \$3.50. If larger nuclei are wanted, add 50 cts. for each additional frame. Full colony in A. I. Root's Simp. hive, \$6.00, each to contain a tested queen and plenty of bees and brood, all on wired L. frames drawn from fdn. To be shipped in May; safe arrival guaranteed. I shall do by all as I would be done by. Address 7-10db. N. A. KNAPP, Rochester, Lorain Co., O.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

HAS the permission of the writer to publish the following:

Forest City, Iowa, March 28, 1887.

W. Z. Hutchinson, Rogersville, Mich.—Dear Sir and Friend:—I am in receipt of your pamphlet—"The Production of Comb Honey." It is the nearest little thing I have seen lately. As a work of art it is as near perfection as printers in 'country' offices usually attain to. I venture the opinion that that cover was the work of a bee-keeper, or at least originated in his (your) creative brain. Nobody but a bee-keeper would have thought of such a unique and appropriate covering. The subject is treated in a very readable and creditable manner. I have been practicing substantially the same method, except the non-use of foundation. I shall try that this season. Respectfully yours, EUGENE SECOR.

Reader, if you wish to enjoy the same pleasure as did Mr. Secor, send 25 cts., and a copy of the book will be sent postpaid. 10tfdb.

LOOK HERE!

Dollar queens ready to ship; 500 lbs. of bees; 1000 lbs. comb foundation, and a large stock of supplies. Will be sold at rock-bottom prices. Send for our price list of 1887, now out.

SMITH & JACKSON,
P. O. Box 72. Tilbury Center, Kent Co.,
10d Ont., Can.

A Cheap Smoker.

MARTINSVILLE, O., Apr. 11, 1887.

Messrs. Bingham & Hetherington, Abronia, Mich.:

Enclosed find \$2.50 for two large 2½-inch Bingham smokers (wide shield). They are for my neighbors. I have one of the Bingham smokers that I have used for six years, and it is as good as ever. Send for half-dozen rates.

Respectfully, AMOS R. GARNER.

PRICES OF BINGHAM SMOKERS.

	By Mail, Postpaid.
Doctor Smoker (wide shield).....	3½ inch \$2 00
Conqueror Smoker (wide shield).....	3 " 1 75
Large Smoker (wide shield).....	2½ " 1 50
Extra Smoker (wide shield).....	2 " 1 25
Plain Smoker.....	2 " 1 00
Little Wonder Smoker.....	1¾ " 65
B. & H. Honey-Knife.....	2 " 1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address

T. F. BINGHAM, or
BINGHAM & HETHERINGTON,
Abronia, Mich.

9-12db

WANTED TO SELL.

100 3-frame nucleus colonies of hybrid bees, with queens, each.....	\$2 50
Two-story Simplicity hives (complete) each.....	1 50
Chaff hives (have been used some) each.....	3 00
Highly bred hybrid queens, each.....	1 00
4½x4¼ sections (V groove) per M.....	5 00

The photo of my apiary given as a premium on supplies purchased to the amount of \$5.00, cash orders. Will exchange nuclei colonies or ext'd honey for apiarian supplies, if new.

7tfdb J. M. YOUNG, Rock Bluffs, Nebraska.

NEW YORK, NEW JERSEY, MASS., * BEE-KEEPERS * CONN.

—SEND FOR MY NEW PRICE LIST.—

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.
4tfdb

Will sell tested queens at \$1.25 each; untested at 75 cts. each. Nuclei and full colonies for sale, either Italians or Syrians.
8tfdb ISRAEL GOOD, Sparta, Tenn.

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price 1½ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	13 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 64, 63, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
12	34 rolls of 100 sq. ft. each; 3 of 102 sq. ft.; 4 of 98, 2 of 97, and 1 each of 92, 52, 44, 43, and 28 sq. ft.
14	1 roll each of 26, 14, and 5 sq. ft.
16	10 rolls of 133 sq. ft.; and 1 each of 132, 131, 131, 128, 128, 106, 56, and 12 sq. ft.
18	4 rolls of 150 sq. ft.; 6 of 147 sq. ft., and 1 each of 153, 148, 145, 145, 144, 130, 117, 69, 45, 37, 24, and 24 sq. ft.
22	1 roll each of 73, 73, 55, 46, and 16 sq. ft.
24	36 rolls of 200 sq. ft. each, and 1 each of 92, 90, 66, 52, 50, 50, 50, 44, 36, 32, 30, 30, 24, 24, 20, 20, 20, 12, 12, 8, 8, 6, and 6 sq. ft.
26	109 rolls of 216 sq. ft. each, and 1 each of 227, 216, 204, 199, 196, and 7 sq. ft.
28	66 rolls of 233; 10 of 224; 1 of 222 and 1 of 257 sq. ft.
30	15 rolls of 250 sq. ft., and 1 each of 11, 10, and 7 sq. ft.
32	8 rolls of 256, 2 of 256 sq. ft., and one each of 275, 99, 96, 84, 50, 13, and 8 sq. ft.
34	25 rolls of 283 sq. ft., and 1 each of 142, 142, 133, 130, 74, 54, 17, and 14 sq. ft.
36	13 rolls of 300 sq. ft., and 1 each of 288, 147, 120, 45, 36, 36, 34, 33, and 9 sq. ft.
38	24 rolls of 316 sq. ft., and 1 each of 633, 300, 47, and 9 sq. ft.
42	1 roll of 17 sq. ft.

A. I. ROOT, Medina, O.

INDIANA.—Headquarters for pure **ITALIAN QUEENS.** At prices that will surprise you. Write us for catalogue and full particulars.

MARTIN & MACY, North Manchester, Ind.

Eggs from high-class poultry for sale.

BEE-KEEPERS' SUPPLIES

Near your home in Western Pennsylvania and in the oil-producing district of Butler Co.

SIMPLICITY, PORTICO, AND THREE STYLES OF CHAFF HIVES.

Send for price list, if it is to your interest to deal with me.

C. P. BISH,
78910-11-13d St. Joe Station, Butler Co., Pa.

BEES! 300 COLONIES ITALIANS.

Ready for spring delivery at 60c to \$1.00 per lb., according to time. Choice queens and brood cheaper in proportion. Also **ADJUSTABLE HONEY-CASE**, hives, and supplies. Circular free. 6tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

CHEAP! ITALIAN QUEENS, COLONIES, BEES BY THE LB., NUCLEI, AND COMB FOUNDATION.

Send for Circular.

7tfdb

JAS. McNEILL,
Hudson, N. Y.

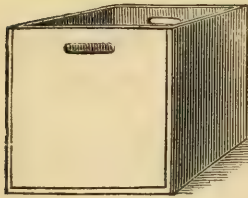
ESTABLISHED 1855.

BEESWAX HEADQUARTERS.

We have constantly on hand a large stock of Domestic and Imported Beeswax in original shape, which we offer to manufacturers of Comb Foundation at lowest prices. We guarantee all our beeswax absolutely pure. Write to us for prices. Address

R. ECKERMANN & WILL,
Beeswax Bleachers & Refiners, 4-12b SYRACUSE, N. Y.

POTATO BOXES



(TERRY'S).

These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

A. I. ROOT, Medina, O.

There is Some Fun

And much sense in our beautiful chromo card described on pages 83 and 112. Sense to tell people in a neat way what you have to sell; and fun to take in the money. Look it up, or address

4tfda **J. H. MARTIN, Hartford, N. Y.**

FOR PRICES OF

Berry-Baskets and Crates, Send to

MELLINGER, HARROLD & GROVE, Columbiana, O.

SEND FOR SAMPLE BASKET FREE.

We also sell baskets in flat.

7-10db

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



This box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for

10; package of 25, 30 cts.; \$1.00 per 100; or \$9.00 per 1000; 10,000, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls—1 ct. per Square Foot.

Two or more pieces, 5 per cent off; ten or more, 10 per cent discount.

You will notice in this lot some with heavier wire than No. 19, and some with smaller mesh than two-inch. Both of these are worth more at regular prices than two-inch No. 19; but as it is a job lot we put it all in at the same price.

By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.

Inches wide.	Inch mesh.	No. of Wire.
6	2	18 10.
12	2	19 91, 85, 50, 41, 40, 25, 25, 10.
12	2	18 70, 15, 13, 13, 1½ mesh, No. 17 wire, 24.
18	2	19 150, 150.
24	1½	20 120, 120.
24	1½	19 220, 64, 28, No. 18, 200, 1½ inch mesh, 62.
24	2	19 300, 170, 140, 130, 100, 100, 88, 82, 64, 64, 56, 50, 50, 40, 32.
24	2	18 225, 224, 58, 58, 56.
30	1½	19 41, 32, No. 18 wire, 90, 40, 30.
30	1½	19 75, 55, 17.
30	2	19 250, 237, 167, 125, 125, 122, 45, 40.
30	2	18 150.
36	1½	19 144, 114, 75 No. 20 wire, 348, 312.
36	1½	18 108, 39.
36	1½	19 27 No. 18 wire.
36	2	19 345, 330, 270, 255, 246, 240, 204, 204, 198, 195, 132, 126, 75, 75, 60, 57, 33.
36	2	18 360, 114, 72, 51.
42	2	19 350 No. 18 wire, 203 No. 18, 1½ mesh, 180.
48	1½	20 40.
48	2	19 264, 200, 68.
48	2	18 172, 60.
54	2	19 450 No. 18 wire, 224.
60	2	19 595, 490, 445, 385, 335, 330, 325, 285, 280, 240, 225, 220, 210, 180, 165, 160, 140, 130, 80, 50.
60	2	18 470, 335, 320 No. 17 wire, 195.
72	1½	19 438, 312, No. 18 wire, 228.
72	2	19 750, 720, 690, 672, 636, 618, 558, 510, 438, 438, 420, 270, 252, 252, 222, 192, 168, 168, 162, 162, 156, 146, 156, 126, 130, 66, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting and all can be rolled up and laid away until another season.

A. I. ROOT, Medina, O.

JADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
See advertisement in another column. 3tfdb

SYRIAN ITALIAN AND ALBINO

BEEES AND QUEENS

One lb. bees, 1 frame of brood, and untested queen, \$2.25; 1 untested queen, 75 cts.; 2 untested queens, \$1.25; test d. \$1.50; hybrid queen, 25 cents; bees by the pound, 50 and 75 cts.; frames of brood same. Write for anything not mentioned.

9-10-11-12d **N. E. COTTRELL, Fayette, O.**

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address
6tfdb **HENRY ALLEY, Wenham, Mass.**

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

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KIND WORDS FROM OUR CUSTOMERS.

FOUNDATION VERY NICE.

The foundation you sent is very nice—or, at least, the one box we looked into is very fine — the nicest we ever received from you or from any one else.

RANDALL & SEARES.

Girard, Erie Co., Pa., Apr. 22, 1887.

THE SMOKER JUST THE THING.

The smoker I ordered March 1st arrived April 2d. It is just the thing I wanted. I tried it this week. My wife says it makes too much smoke. Accept my thanks for your promptness.

M. A. JOINER.

Waterboro, Ga., Apr. 9, 1887.

THE SMITH PUMP PUT TO A SEVERE TEST.

The Smith force-pump has arrived, and has been put to the most severe test. I am perfectly delighted with the result, as it is a much better article than I had any idea could be obtained for so small a sum.

W. B. DILLON, Sec. Coraopolis School-board,
May 11, 1887. Coraopolis, Pa.

THE WHEELBARROW A BEAUTY.

The bill of goods you shipped me came to hand in due time and in good order. The wheelbarrow is a beauty—the nicest that ever came to Southwestern Wisconsin. "Fables and Allegories" is a "daisy." All the goods are No. 1.

G. L. HALL.

Waldwick, Iowa Co., Wis., Apr. 27, 1887.

I commenced getting GLEANINGS something over a year ago. When I saw your Tobacco Column, and how much you were interesting yourself in it, I determined to quit smoking for one year. I had quit chewing something over ten years ago. The year was up some time ago, and I have saved more than the price of GLEANINGS on that.

W. S. CONFER.

Hemlock, Pa., Apr. 11, 1887.

A PLEASED CUSTOMER.

The bees I received from you, shipped on the 19th, arrived on the 26th in magnificent style, and are doing finely so far. Express charges were \$2.70. The extreme care you seem to take in having your bees reach your customers safely is very commendable, and I must express my delight in receiving mine so promptly and in such excellent shape, as these are the first in the country.

J. N. COE.

Lincoln, New Mex., Apr. 29, 1887.

A KIND WORD FROM FRIEND STALHAMMER, AWAY OVER IN SWEDEN.

Your kindness and generosity toward me, in offering me GLEANINGS by way of exchange, with my very humble *Svensk Btidsning* (Swedish Bee Journal), far exceed any thing I could have expected, but when getting so liberal a proposal I can not but gratefully accept it.

I suppose I shall never be able to pay a visit to

you, a man not only a pre-eminent bee-keeper, but also well conversant on any thing pertaining to agriculture, gardening, stock and poultry raising, etc., and trying to spread broadcast all over the world and amongst your fellow-creatures the results of your experience, ingenuity, and faith, thus giving us plenty of material and needed help, only because you are and always will be a true Christian, above all. I hope you will kindly excuse my boldness in sending you my photo. Your good and kind heart will also be sure to excuse me in offering you to kindly accept the two following treatises of mine: "Theoretical and Practical Manual of Bee-Keeping," and, "The New Way of Cultivating Potatoes"—my own way as well as that of Mr. Terry—the one copy of the Manual to be forwarded to Mr. T., that gentleman having already the treatise on potato culture. I am fully convinced those books have only a very small value to you, if any; but I am sending them as a testimony and token of my esteem and gratitude to both of you. I suppose it will interest Mr. Terry very much to know that his book is reproduced in my book, and now is translated into German and spread over all that country. I beg you to kindly read the preamble of the treatise on potato culture. There you will see the testimony of the great esteem in which I hold you.

H. J. STALHAMMER.

Gotheborg, Sweden, March 11, 1887.

[Friend S., it was quite a pleasure to look your books over, even though we could not read them; and it is gratifying to us to know that friend Terry's teachings have gone outside of our own language.]

BEES by the POUND At \$1.25.

Safe arrival and prompt delivery. No queens nor circulars. 275 colonies to draw from.

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I WILL SELL combs, drawn from wired fdn., in metal-cornered frames, well covered with bees, over two-thirds filled with hybrid sealed brood, for 75c each; 10 or more frames, 20 per cent discount. Also a few tested Italian queens at \$1.50 each, one year old.

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is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; Chas. H. Green, Berlin, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas; W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1885. We guarantee every inch of our foundation equal to sample in every respect.

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—BEES and QUEENS—
during 1887 at the
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One colony bees.....	\$ 7 00
Five " " " " " " " "	30 00
Ten " " " " " " " "	50 00
One untested queen.....	1 00
Three " " " " " " " "	2 00
1 untested queen reared by nat'l swarming.....	1 50
Three ditto.....	3 00
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3 " " " " " " " "	4 00
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Tested queens, 1886 rearing, each.....	4 00
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Tested queens, 1886 rearing, each..... 4 00
Extra selected, 2 years old, each..... 10 00
Circular free, giving full particulars regarding the bees, and each class of queens.

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MY 19TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
9-11d **H. H. BROWN, Light Street, Col. Co., Pa.**

Old Reliable Headquarters for

BEES in nuclei or by the **POUND.**
Pure Italian Queens also a specialty. Prices very low. Instructive circular and price list free.
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BEE KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, for 1887, FREE. Reduced prices. Address **JOS. NYSEWANDER, Des Moines, Iowa.**
3tfdb

4103 LBS. OF HONEY GATHERED BY 40 COLONIES IN 7 DAYS.

We have purchased L. C. Root's celebrated breeding stock, which, together with our own, gives us the choicest collection of Italian bees in the world, and one that has the

BEST HONEY-PRODUCING RECORD EXTANT.

We will spare a few full colonies and nuclei containing some very choice breeding queens of this stock. We make a specialty of rearing **only first-class Italian Bees and Queens** at the

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Our circular for 1887 contains an important letter (regarding these bees) from L. C. Root, that every bee-keeper should read. Send for it before ordering queens elsewhere. Address

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PRICE LIST STICK.

Common circulars are often thrown away with only a passing thought, and soon forgotten. But our beautiful, instructive, amusing

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Will stick. When the articles upon it are explained, the story will be repeated many times. Bees, flowers, children, implements, brilliantly

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Give it to a customer for honey or supplies, and you will not be forgotten.

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SUPPLIES VERY LOW.

Very nice brood foundation, 38 cts. per lb. Italian Bees in 10-frame L. hives, plenty of honey, straight combs, with queen, \$5.00. Novice extractor, well made, \$5.50. All supplies correspondingly low. **E. Y. PERKINS,**
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PURE ITALIAN QUEENS FOR 1887.

Tested	- - - - -	\$1.00
Select Tested	- - - - -	1.25
Imported, best	- - - - -	6.00

After May 20. Order early, as I shall have only a limited number. Address **S. F. REED,**
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Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

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Ever sold for the price. Write for samples and particulars. **M. H. HUNT,**

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Sent by mail; safe arrival guaranteed, from April until October. Tested queens, \$1.50; Untested queens, \$1.00; per dozen, \$8.00. Satisfaction guaranteed, or money refunded. 9-13db

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SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

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Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
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Has a pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail. Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

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Tested queen in April, May, and June..... \$2 00
Untested 1 00
After June 15th, tested, \$1.50; untested, 75c. each.
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Dunham Brood Fdn., 40c. per lb.; extra thin Vandervort Fdn., 45c. per lb. Wax made into fdn. for 10 and 20c. per lb.

SAMPLES FREE.

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—MANUFACTURERS OF—

Bee - Keepers' Supplies.

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— 1887 —

CIRCULAR

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No. 11.

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FRIEND POPPLETON'S REVIEW.

THE "EXPLANATION AND DEFENSE."

BEFORE me lies a copy of the *Bee-Keeper's Guide* for April, 1886. According to the tables published in this number, its editor had been wintering bees in the cellar only three winters; and the saving in stores by cellar wintering was, upon an average, two pounds and nearly one ounce per colony. I presume some of my readers are ready to exclaim, "I guess you were a little wild! Two pounds and one ounce of honey will not pay four times over the expense of cellar wintering." Not so fast, my friends. Have you any idea what it costs to winter bees in a cellar? You, Mr. Editor, put it at 25 cents per colony, when you were reporting the Michigan State Convention, held in Lansing two or three years ago. Well, I'll tell you, my friends, the conclusion I arrived at, and I reached it in neither a wild nor a careless manner, but by careful inquiry, by correspondence and otherwise, and it is this: Bees can be wintered in a cellar at a cost of *three cents per colony*! Counting a man's time at one shilling per hour, they can be carried in and out of a cellar for 2 cents per colony, and the interest upon a cellar or repository will vary from half a cent per colony to one and a half cents. My cellar under my house will hold 100 colonies, and it cost not far from \$10.00. The soil is hard clay, the walls are given a slant, and no stone walls are needed. Mr. R. L. Taylor has a new cellar under his honey-house. The walls are stoned up. The cellar cost \$50.00, and will hold 250 colonies. Mr. J. H. Robertson has an outdoor cellar made of boards, and the walls are filled with sawdust. I think it cost him about \$40.00, and I at one time saw 250 colonies inside of it.

After having made the assertion in regard to the

saving of stores by cellar wintering, I then said: "But, of far greater importance, it is only by the cellar method that the wintering of bees can ever be reduced to a *perfect system*."

With all the care that I took in writing my book, to have it so worded that readers would be compelled to understand it, I now see that the above is liable to be misconstrued. If I understand Mr. Poppleton he has, I think, misunderstood me upon this point. By a "perfect system" I mean one that secures *uniform* results. Prof. Cook, in his article in the May 1st issue, covers this point so completely, and in so few words, that I will quote them. He says: "Now, why I prefer a cellar is this: If the cellar is right, we are always safe, providing we look out for food. With chaff hives, we are not safe; at least, it so seems to me, even in the latitude of Central Ohio. Occasionally a long, severe, uninterrupted winter comes, and the bees are swept away, when those in the cellar are as safe as ever."

Friend Poppleton says: "I do not think that yourself, or any one else who practices your general system of management, will, as a rule, be successful in outdoor wintering." No reasons are given for this belief (I wish there had been), and I have puzzled over it quite a little without being able to so much as arrive at a *guess*. I have always worked a few colonies upon the old plan (the same as almost everybody works them), and have wintered part of them upon the summer stands and part in the cellar, and also wintered, upon their summer stands, part of the colonies worked in the new way, and I have failed to see that the latter wintered one whit behind the others, whether in the cellar or out of doors; while those worked upon the "Hutchinson plan" have always yielded a greater profit. Mr. Donane lives $2\frac{1}{4}$ miles from here. He does not believe in "contraction" nor "starters

only," nor does he practice "sugar feeding" in the fall. He came over a year ago and bought my empty combs. He hives his swarms on ten L. combs, and winters his bees in chaff hives. His percentage of loss the last winter is much greater than mine, with many weak colonies, while almost every colony of mine is "booming." I fail to see why the cellar method of wintering is any more essential to success with my methods of management than with any other method; but, even if it were, I should still adhere to it because it is more profitable, and, by cellar wintering, stores can be profitably saved, and more uniform results secured.

In the next paragraph Mr. P. brings up a point that I had overlooked; viz., that spring protection will enable us to successfully practice the spreading of brood; and Mr. Doolittle, in the last number, gives an excellent article on—well, I should call it *contracting* the brood, but I still feel that I have no desire to change the following, taken from page 14 of "The Production of Comb Honey."

"Judging from my own experience, and the reported experience of others, it is my opinion that an experienced apiarist, *having more time than colonies*, may sometimes, by exercising great caution, practice to advantage stimulative feeding, or spreading of the brood, in the spring; but in a very great majority of cases, if not in all cases, I think it much better to simply see that bees have an abundance of sealed stores, then pack them up warmly and let them alone."

I wish to call attention to the words that I have italicized. If an apiarist has more time than colonies, and can get no more colonies, it will be profitable for him to so manipulate the ones he possesses as to receive the greatest amount of honey per colony; but when the question is viewed in a broader light, viz., that of securing the greatest amount of honey with the least expenditure of capital and labor; when we attempt to combine capital, labor, and the honey-producing area, in the *most profitable* manner, I believe that the spreading of brood must step down and out.

In regard to separators, I have so many times given my views to the public that I will not repeat them. When my honey takes first premiums at fairs, and is pronounced by dealers as the "finest," and they "didn't know it *was* raised without separators" until I so informed them, why should I trouble with separators? I have explained, in my book, their advantages and disadvantages, the conditions under which they are needed, and the methods necessary to their abandonment.

I have never seen a two-piece section; but if, as friend P. says, "it has the good but none of the bad points" of other sections, I am for it.

Friend P. takes a "square and decided issue" with me in regard to using empty combs in the brood-nest when hiving swarms, if we are raising *extracted* honey. Candidly, I thought the taking of swarms, either comb or extracted, from the brood-apartment was one of the things of the past. It is much more convenient to have the brood in one apartment and the honey in the other. If Mr. P. would use no larger brood-chamber than one that will contain sufficient stores for winter, and *desires* to winter his bees upon *natural* stores, I then see no objection to using empty combs in the brood-nest when hiving swarms, in raising *extracted* honey; i. e., if the bees will store just as

much honey in the aggregate; but I prefer to have autumn find the brood-nests nearly free from honey, because I can then fill them with sugar syrup at a *profit*, and feel certain that the bees have the best of food for winter. I will admit, that, in raising extracted honey, the profits arising from wintering bees upon sugar are very slight—not sufficient, perhaps, to be of any great account; but the safety attending the use of sugar for winter stores is very great; and, in raising *comb* honey, the profits are considerable.

In regard to Italians vs. blacks, I have noticed this: When the honey resources are poor, and much work must be done to get any honey, the Italians are superior, and will store the most honey; but in the "short, sharp flows of honey," which is the way we get most of our surplus here at the North, the simon-pure blacks have no superiors. It is surplus honey that we are after, and I have always secured just as much surplus from the blacks as from the Italians, and, as explained in my book, some of the manipulations are much more easily performed and the honey has a finer appearance.

The references to the pages of the *A. B. J.* should read "for 1884," instead of 1886.

Mr. P. has my sincere thanks for the fair and kindly manner in which he has criticised.

And now, friend Root, a few words in regard to your editorial remarks on page 408.

I do not think there is an idea in the book that could be made clearer by using an engraving. When reading it, was there any thing you failed to understand, that a cut would have made plain? If there is any obscurity that pictures will clear away, I hope the friends will point it out, and engravings shall be forthcoming in the first re-issue; but if pictures are not needed, why use them?

And now about the price being too high. I hope I may be pardoned for the apparent egotism with which I explain its cost. The book contains 45 pages of reading-matter, they being about 3x4 inches in size, aside from the margin. To write these pages I spent one whole month, writing scarcely two pages a day. Before writing any thing I tried to be certain that my facts *were* facts, in *fact*; then I set to work to give them in the fewest words possible. I wrote and re-wrote, and re-modeled sentences and paragraphs over and over again, until I felt that there was no redundancy, no froth, and that my readers *must* understand me; and having worked in this manner, I presume you well know, friend Root, how pleasant it is to have Dr. A. B. Mason say: "You just more than boiled it down, didn't you?" and Mr. G. W. Alves say, "The clearness with which the author states his ideas, together with his enthusiasm, raises his performance at times to some degree of brilliancy;" and Prof. Cook says, "This book shows him at his best," etc. I could have left the book at twice its size with one-half the labor. To condense is *work*. I agree with Mr. R. L. Taylor, that the value of a book or paper does not depend upon the number of words it contains, but rather upon the information; and if you, friend Root, would be willing to pay *double* price to have a book well illustrated, as a matter of saving in time, why not, for the same reason, pay at least an equal price for one that is "boiled down"? How many times have I laid down a bee-paper with the thought, "All the information that paper contains might have been

printed upon *one* page, and I would give more for the paper if the information were all on one page, and that that were all there was to it, as I should then have been spared wading through the froth." Have you never felt this way? Am I not right?

Well, when it came to publishing, the only first-class publishing house near here was at Flint, and that one was overburdened with work, and could work in a "form" only occasionally, and I had to go to Flint, and go to Flint, for another *month*, until it almost seemed as though I lived there. Then the getting-up of that cover, which has received so many compliments, was an experiment, or, rather, the result of a good many experiments; but then I put my *whole heart* into the work, spared neither time nor expense, used new type and the best of paper, and was determined that the book should be a little typographical *gem*; and how I did enjoy the work! but when it was finished, and I had figured up the cost, I found that I could not sell the book at less than 25 cts. and have a fair profit left. But I will say this much: If any purchaser is dissatisfied, and thinks the book is not worth the money, he may return it, unsoiled, and I will cheerfully refund the money.

I am more than willing to give friend Doolittle, or *any one*, all the credit that belongs to him; and if having given him credit in "two places" is not sufficient, I will continue to do so until everybody is satisfied.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., May 20, 1887.

Friend H., if you think there is nothing in your book that can be made clearer by the use of engravings, then you and I will have to agree to disagree. On page 12 you speak of one section of Mr. Heddon's hive. I would by all means show what said section looks like; and then under the picture I would name it, "One Section of Mr. Heddon's Hive." I like pictures, and I always want a title to them—something to tell what the picture is intended to represent or explain. It always vexes me when I am compelled to read a couple of pages to tell what the pictures in any book are intended for. On the next page you speak of spring protection, and mention a rim 2 x 3 feet in size by 18 inches deep, made of cheap thin lumber. Well, it requires a mental effort on my part to build up in imagination something 2 x 3 feet in size and 18 inches deep. In the first place, I have to study over the matter somewhat to know whether you mean a box of the above dimensions, without top or bottom, or whether it is something else. You say, again, its front edges should rest on the end of a little bridge. I would have a picture of said bridge. A few lines further you speak of a shade-board. Show us a picture of the shade-board also. A while ago Mr. Heddon and myself wrote a column or more in regard to a misunderstanding about the flat cover of his hives. When I came to see a picture of the cover, however, it was as plain as could be. He had one thing in mind, and I another. If I am correct, some of the rest of the brethren dipped into our controversy too, all for the want of a picture. On page 14, you say, by tacking a strip across the two boards used for sides of the rim, they may be united and used for a shade-board. I should say, by all

means give a picture of said shade-board, put together as you describe. I can not even conjecture now what it would look like.

It is not worth while for me to go through the whole book in just that way; but I think I should want at least a cut for every page. These cuts cost money, of course, and it requires the personal supervision of the author of the book to get the engraver to understand exactly what the writer has in mind. But, suppose it does—what of that? And now to the other point. You say your time on the book amounted to so much that you could not afford to sell it for less than 25 cents. I know a great many people differ with me right here. But I presume no one will object if I again tell the way I feel about such things. In deciding what to sell a book for, I would not pay any attention to what it cost. I would put it like this: What will people be willing to pay for the book, comparing it with other similar books? Last summer a man sold me some pears. I tried to pour them into our own bushel boxes; but his bushels were so large, I couldn't get them in. I asked him if he was not giving too many pears for a bushel. He said he always liked to give good measure in every thing. There may be extremes in this, but I think it is a pretty good plan to go on.

There are three things we sell that people are always pleased with. In fact, this has been so invariably the rule in years back, that we send any one of these three things to anybody, without pay. The reason is, because we give so much for the money, that even a dishonest man feels he has got a bargain, and remits with a "thank you." The three things are, the A B C book, the cold-blast smoker, and GLEANINGS. Practically speaking, nobody ever has to be dunned to get him to pay up for these three. Where you say you will return the money to anybody who is dissatisfied, we come practically on to the same ground; for after a man has read the book through, you give him his money back, providing he simply pays postage. Now, I do not mean by the above that one is to continue selling a book he has put out, at a price that will not pay cost. I mean simply this: Give good measure compared with what the world usually gives in a book, and the large sales that will result from so doing will eventually pay you a better profit than the other way with smaller sales. The book is surely valuable. It is boiled down in the way you state; but if, in addition to this, you could have made the pages attractive with nice pictures, right in line with the valuable suggestions on every page, the book would have started out with a great boom, and this boom could be kept up by additions in the way of an appendix or otherwise, as fast as improvements come up.

I have taken some space for these suggestions, because I know they will be valuable to many of our book-makers. I have published books that have been quite a success, and I have also published some that have never realized a tenth of the money put out upon them. I was thinking a day or two ago, that if I ever felt called upon to write

another book it should be good measure, full of pictures, and I would lay my plans for a new edition, with additions just as fast as the book began to get the least bit stale or out of date.

OUR P. BENSON LETTER.

HIVIN JENNY'S SWARM.

THE summer Jo Stull bilt his 2 story hen house, 1 hot day Jenny Hutchisen see a swarm of bees a cummin lickity brindle, rite strate for thair house. It so happend that day that she was all alone and not a sole at home but her. Jenny's 1 a them girls whitch aint afeerd a nothin if she doant git flustered, and the 1st thot whitch cum into her hed, as she shet her teeth 2gether, was "Them air bees is mine." The bees was a slow-in up sum, and a kinda sailin roun & roun like, and Jenny diddent no much about bees but she heerd Carry Davis say that if you made a big noise so the bees cooddent hear the king, thade settel. So she just put both hands onto her waist, settled herself back a little, shut her ize $\frac{1}{2}$ open, opened her mouth to its fool cumpass, and let out sitch a yell yuda thot it was 25 locomotives & a wild Sue injun. That started out the Wilsons whitch jined farms with the Hutchasens. That was before Jack was married, and he was a running the farm that yeer on account of his father had fell and unjointed his thie bone. So when Jack heer Jenny a screechin and a screemin like the injuns was a scalpin of her, he made for his gun, thinkin they must be burglars to Hutchasens. Mary cum a tarin acrost the paster with a tin pale & a tirky egg into it, whitch she hed bin huntin tirky nests. Sid see Jack git his gun, so she called the dogs & followed, and Em she got the ax & cum pirty neer outrunnin them all. The 4 got there pirty much together, Mary's pale pirty well painted over the inside with the yallow of the tirky

minnit onto the hoopin & hollerin but jest jirked her hed towards where the bees was. Then thay noad what was the matter. Mary diddent waist enny time a considerin, but turned her tin pale upsdown and took a stone & went to poundin for deer life, the tirky egg a streamin down her dress. Em sez to Jenny, sez she "Shut yure big mouth and get sum pans and things. Thattle bring em down quick-ern shootin." "Will it?" sez Jenny, and then she tore into the house like mad and grabbed up the tin pale, the tongs, the dish pan, and a pan of sower milk a standin onto the table, whitch she deliberately upset the milk onto the middle of the floor, whitch she mite jist as well throad it out door, but then Jenny was flustered.

P. BENSON, A. B. S.

(To be konklooded.)

T. P. ANDREWS' APIARY.

MORE ABOUT IT.

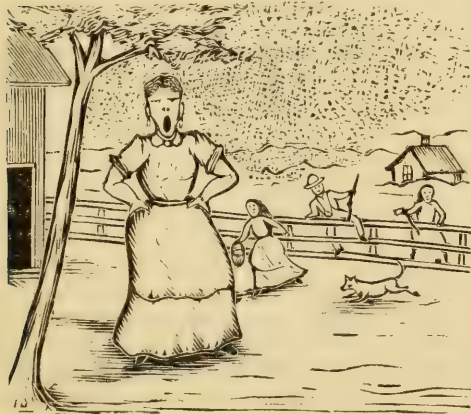
IT is seventeen years since I became interested in bee culture, through the publications of H. A. King, whose hive, the American, I adopted and used for a few years. When I had increased up to about 80 colonies I transferred all my combs into the standard L. frame, and have used it since, exclusively. My main honey-crop has been gathered from tickseed (coreopsis), though usually called Spanish needle. I have never had any surplus from clover or basswood here, the absence of which has caused our annual honey-crop to average only moderate, as compared with more favored localities. Our bees have shown but little disposition to swarm, even when run for comb honey.

During the honey-yield this fall I had my bees, 300 colonies, all at home. I had 130 hives out about four miles; but about the middle of August, just before the coreopsis bloomed, the drought had become much more severe at my out apiary than at home, where we had had some local showers. I accordingly moved the bees home; notwithstanding, there were 300 or 400 more colonies owned within about 2 miles of my apiary. With 600 or 700 colonies in this locality I hoped to be able to throw some light on the question of overstocking, but I am not sure that I have reached any definite results. My honey-crop, mostly extracted, does not exceed 20 lbs. to the colony, fall count. That looks like overstocking. But, on the other hand, at some points a few miles away, bees have done no better than here; while at other places near the timber, where they had a run of honey-dew during June and July, bees have secured a larger crop.

In regard to the picture which appeared in GLEANINGS, page 14, perhaps I should explain that the apiary is arranged in squares of 16 hives each, with broad alleys running each way. The alleys run east and west. The view was taken from the south, and does not show very well in the picture. The smaller building on the left is my honey-house, where the extracting is done, and the surplus combs are stored when removed from the hives. The larger building is the shop where I manufacture and store my hives. The absence of large trees is due to the fact that, when I bought this 10-acre field, adjoining town, three years ago, there was not a tree on it. I have put up the buildings, but have to wait for the trees to grow.

Farina, Ill.

T. P. ANDREWS.



A WHOOPIN AND A HOLLERIN.

egg and they found Jenny a hootin away as loud as ever, standin right into the middle of the yard, her ize kinda sot like. "Whair is he?" sez Jack. Sez Mary "Whair's the fire?" sez she. Jenny wuzzent a goin to take no chances, and if noise was a goin to make them bees settel she woodent risk stoppin. Besides she was encurridged by seein sum of the bees begin to lite onto a jim. So she never let up a

RED CLOVER COMING UP WHERE ALSIKE HAS BEEN SOWN.

FRIEND MUTH SUBMITS TO US SOME CORRESPONDENCE ON THE SUBJECT.

FRIEND ROOT:—It happens once in a while in business, that an unpleasant feature turns up, even between two well-meaning men. A hasty conclusion, to which all of us are subject, is often the sole reason for an ill feeling and an unpleasant controversy. The object of this letter is to enlighten some of our friends on the subject of alsike-clover seed. Wherever I am wrong, I will stand corrected.

A few years ago you sold to our friend Demaree some alsike-clover seed, which, according to his statement, turned out to be red clover. I believe that every word friend D. said in the matter was the whole truth and nothing but the truth, to the best of his judgment. You claimed that the seed sent was alsike. I can understand that your clerks may have made a mistake, for mistakes are made by the best of us, and why not by our clerks? But I can not see why a farmer, being used to sowing red-clover seed, would sow it for alsike, or *vice versa*, without knowing the difference, as there is such a great difference in the looks and the size of the seed.

Again, I can not comprehend why that farmer should not remember, the following season, whether the seed in question had the appearance of red-clover seed, or whether it had not. Yourself and friend Demaree will find my article interesting, I believe, as I have just now a case exactly like yours, with the only difference that I can prove *my* side of the case.

In February, 1885, we sold to O. A. Cory, Frankfort, O., 1½ bushels of alsike-clover seed. My son put up the seed, and remembers exactly of putting it up for friend Cory, because it was the rest of the alsike seed we had purchased in the spring of 1884. We had new seed in already, but closed out to our friend Cory the tail end of the old seed. This fact serves us now as the best reminder that we shipped, to O. A. Cory, seed which we had bought and sold for alsike, which looked like alsike seed, and which we would hereafter buy again for alsike seed.

June 2, 1886, Mr. Cory wrote me that the seed I had sent him in the spring of 1885 had proved to be red-clover seed, that he had sown the seed himself on the field of a neighbor who had now a large field thickly set with red clover, but that he (Cory) was minus the value of his money sent me, and that I should refund part of the money.

Now, I will give you a copy of my letter, and his reply:

Friend Cory:—Your favor is at hand, and contents noted. To-day's mail brings you two papers of clover seed. The paper I. contains alsike seed; II., red-clover seed. The seeds are so different in appearance that no mistake should be made between them. However, neither you nor I am as infallible as the pope, but each one of us means fair business, I believe. Now, as you sowed the seed yourself, you can't help but remember whether it resembled the alsike or the red-clover seed, mailed and marked for you to-day. If you say that the seed looked like the sample mailed you in paper II., then one of our young men made a mistake, for which I am liable, and we shall credit your account with \$6.00.

Waiting for your reply we are, etc.,
JUNE 12, 1886. CHAS. F. MUTH.

COPY OF CORY'S REPLY.

Dear Sir:—Yours of June 12th is at hand. In answer to your questions, I will say, first, the seed

was not a green nor a bright yellow, as your sample of red clover sent me, but was quite dark, as if it had lain on the ground too long before thrashing, and was about five-eighths the size of your sample, and more than twice as large as the alsike got of you this spring; second, the sample of clover sent you is what grew from the seed you sent me, as sure as there is day and night. I believe I make it explicit this time. Remember, I don't question your integrity. O. A. CORY.

Frankfort, O., June 15, 1886.

You will notice that our friend Cory does not answer my questions as direct as would have been desirable. He sent me afterward an order for some goods, and stated that his clover measured 5 feet ¾ inches. I wrote him, July 24, 1886, as follows:

Friend Cory:—Inclosed find invoice and bill of lading. I have seen, more than once, alsike 4½ ft. high. It grows longer than "sapling" or "English" clover, but its stems are more slender. We therefore recommend you to sow timothy with it, so as to have something to lean against. You never saw red clover 4½ to 5 feet high, as you now say your alsike is (5 ft. ¾ inches). Seed is taken from the first crop. You can thrash it, and find the straw as acceptable food to your stock as the first crop of red clover. My son remembers most positively that the seed we sent you finished our lot of alsike of the previous season. So we are sure that it was alsike seed we sent you. I am certain that you would have told me, in reply to a former question, "The seed I sowed looked like red-clover seed," if such had been the case. You did not say so, because you are an honest man, and you really thought that yours was red clover. Alsike is a hybrid, and may not grow every time alike. Our controversy throws some light on an unpleasant experience between two friends—brother Root and brother Demaree. The latter had bought alsike seed of Root, and claimed also that it was red-clover seed which grew up. I shall accommodate both friends by writing them our experience, and I really believe that Mr. Root was no more to blame in theirs than I am in our transaction. It is the hybrid in the clover which causes the variety of growth. C. F. MUTH.

Now I must let follow, for a better understanding, friend Cory's letter of July 30th, and a copy of my reply.

Mr. C. F. Muth:—I am surprised to find a man of your intelligence and experience making the statement that alsike clover is of much larger growth than red or English. My father was one of the first to introduce it in this country, about 25 years ago, and discarded it on account of the high price of seed and its small growth, not being desirable for anything else than pasture for the farmer, of which it makes abundance, if pastured judiciously, which also improves its bloom. I am surprised, also, that it so lately produces a large red bloom, and that the stalks have reached the prodigious size of a common pen-holder, for I had always looked at it as possessing many of the characteristics of white clover. If, from your statement, the largest clover is the best proof of its being the genuine alsike, then what you sold me for alsike two years ago was no alsike, and I was fooled again; but I must say that is the way I want to be fooled, for it filled the design for which its purchase was intended. Will say, further, that its maximum growth did not exceed 15 inches, and the ground was of alluvial soil, none better; and the stems were not so fine as white clover, but not large like our common red, or sapling either. But in reading your very explicit letter, I am reminded that the clover seed you sent me was a "hybrid." Now, that makes all things plain. Am I justified in buying, and you in selling me hybrid seed for pure alsike? If you think it just, then I prefer to purchase a cheaper kind, and it may happen to prove as satisfactory for my purpose as any—I am sure as well, or better, than the pronounced hybrid. O. A. CORY.

Chillicothe, O., July 30, 1887.

COPY OF MY LAST LETTER TO CORY.

Dear Sir:—Inclosed please find receipt. Accept thanks. I have read your letter, and am surprised at the animus. I am positive in telling you that the alsike seed we sent you looked like alsike exactly, and not a bit like red-clover seed. I shall buy again for alsike seed such as we have sent you. The difference in the looks of the seed is too great

to be overlooked by an experienced hand. You *know* that the seed you sowed did not look like red clover, and *we know* that the seed we sent you looked like alsike seed. Both of our statements are truthful. This matter will not create hard feelings between us, but it should convince us that, if your statement is correct, tall and low clover is raised from the alsike seed; and we know (and if we don't we ought to know) that alsike is a hybrid plant. We have raised alsike clover for several years, and it was taller than red clover every time. A friend on the River Road, within two miles of our city limits, had alsike clover 4½ feet long. He invited me to come down and see the bees "swarm" on it, which I did. Will you tell me now that your bees, this summer, did not feed on the clover in question? And will you tell me that you ever saw red clover as tall as your alsike of this summer, which you say is 5 ft. 3½ inches long? Reading over your letter once more, I notice that you may sell the seed of that clover in question for alsike. This looks like an exhibition of good sense, for I verily believe it to be alsike-clover seed. Please send me a sample of the seed, when I will make you an offer for the lot.

C. F. MUTH.

Cincinnati, O., July 31, 1886.

Friend Muth, I can not suggest any good explanation for the difficulty between you and your customer. I will, however, say this, that quite a good many have complained that red clover came up when they sowed alsike seed; and my opinion is, that the red clover had been in the soil, and, owing to some accidental conditions that were just right for its germination, it started vigorously, while for some other reason, perhaps accidental, the alsike did not start as freely. I suggested the above explanation to friend Demaree, but he rejected it rather vehemently. A neighbor of ours sowed alsike a number of years ago, and it did not seem to amount to any thing; but several years afterward, I can not now tell just how many, by accident the ground was plowed up and every thing happened to be especially favorable for the germination of this alsike seed, and he got an excellent stand—better than is often secured when we do our best. The same thing has happened a good many times with red clover.

The seed of alsike is so unlike the seed of red clover that I do not see how anybody who has had any experience at all with the two clovers could ever make a blunder in sowing the seed. The seed of red clover is so much larger it can be easily sifted out with almost any ordinary sieve. There is no need of any admixture ever being found in the market. We have just purchased the best mill that can be found, for separating clover-seeds. This mill is to be placed in the basement of our new factory, and it is to be run by power. By means of it we expect to be able to give pure clean seed, of any of the clovers in use by bee-men.

I am afraid friend C. did not exactly understand your meaning when you said that alsike is a hybrid; that is, it is said to be a cross between the white and red clover. Now, although it is a common thing for hybrid plants and animals to revert to one or the other original parents, I hardly believe alsike is guilty of such a trick, for the reason that it has been for so many years an established variety of clover, and it is not given to sporting any more (so far as I can discover) or perhaps not as much, as different kinds of large red clover. Perhaps Prof. Beal or Prof. Cook will be so kind as to give us a hint on this matter. I should very

much like them to say whether they consider my position on the question a right one. I have never seen alsike so tall as you mention; but on very rich ground I have seen it a tangled mass of vines, perhaps fully five feet in length.

ADVERTISING; WHY IT PAYS, AND WHY IT DOES NOT PAY.

BEE-JOURNALS "REDOLENT OF WAX AND SAW-DUST," ETC.

DEAR BRO. ROOT:—Some things in GLEANINGS suggest a few thoughts, and this happens often and always; but I seldom get so far as to put pen to paper to give you the benefit, or to bother you, as the case may be. I do not report progress in business or personal matters, as my success has not been remarkable, but moderately fair. I have built up a fine apiary, in which I have great satisfaction, but have not established a trade or a name that extends very far. Here comes up the question of advertising. I have not advertised much, and I might say, as some do, that advertising does not pay. We have advertised in our county papers, perhaps ten dollars' worth, and I know of only two customers that we got thereby—two or three dollars' worth of honey sold, and more than half of that to the printers. We advertised in GLEANINGS about fifteen dollars, I believe, besides ten pounds of paper with printed heading, and some printed postal cards, the income of which is a continuous flow of circulars and price lists from those who have bees and supplies to sell, and very few inquiries from any who wish to buy. Our sales of such wares as we deal in have been to men near by whom we know personally, who visit us, and whom we visit, and who have not known of our advertising. Now, I think it unjust and foolish to turn round and blame and abuse the publisher for this. The fact is, we did not advertise enough. It is not those who make a sudden and spasmodic appearance in print that get hold of the attention of the public, and keep it, and increase and extend their business, and make advertising pay. It is those who follow up the fickle public, and take them by the button-hole by judicious advertising from month to month, who make their names and business familiar as household words; and if they are reliable, prompt, and progressive, those who are attracted to them by the printers' aid will stay with them on account of their own worthiness; and if not—not.

It may have been an error, but I decided, soon after coming to this place, that I could more profitably devote my energy to building up a strong and good apiary, and the production of honey, than to attempt much in the way of selling queens, bees, and supplies, though had I been associated with a thorough business man instead of a professional man, things might have taken another turn.

Here follows the question of bee-journals as connected with the supply-business, or wholly separate from it. This comes up once in awhile, and I have seen some publications that harped upon it continually, in a very unlovely and unhappy strain. I do not think there are many bee-papers in our country that are thus entirely disconnected, nor do I think there is any thing particularly meritorious in such a position, or any thing unfair in the opposite. I look at it from this point; It

seems to me a fine thing for a man in the supply-business to publish a price list, and a journal too, if he is able; and it usually comes to pass in that way, though some who have undertaken to issue a bee-paper apart from the supply-business have found it necessary to add that also, and to do the very thing they had so much condemned in others. I do not believe that the great multitude of *bee-keepers* find fault with such arrangements. It is, as I think, chiefly some publishers, or their sympathetic friends, who complain; and I hope I am not uncharitable in attributing to them an envious spirit.

Other things being equal, the bee-keepers prefer a paper that comes to them all redolent of wax and sawdust, of honey and the honey-comb, echoing the clang and buzz of the planer, the saw, and the anvil, the throb and jar of the press, the stir of men and women at work, and the hum of happy bees, and that which ennobles the whole, a voice of daily prayer and praise, and counsel and encouragement in general business, and in all that affects our homes and social life, in virtue and piety a helper and a guide. I say, the people, the men and women, the boys and girls, prefer such a paper and love it, while few, comparatively, would have any thing like the same interest in articles of a more impersonal style, however scientific and correct and useful, and perhaps rather theoretical than practical. D. F. SAVAGE.

Casky, Ky., Feb. 7, 1887.

A DEVICE FOR REMOVING SECTIONS FROM WIDE FRAMES.

HOW OUR CALIFORNIA FRIEND WM. MUTH-RASMUSSEN DOES IT.

THE description and picture in April GLEANINGS, of Dr. Miller's method of removing sections from the T super, as well as the same description which I had previously read in his own book, but did not quite understand until now, lead me to send you an article which I wrote for the *Pacific Rural Press* nearly two years ago, describing my device for removing sections from wide frames. As many bee-keepers, no doubt, like myself, are using wide frames, and, having once invested in them and got used to them, do not care or feel able to change for what may or may not be a better arrangement, perhaps my device may be of interest and usefulness to them. You will notice that my device operates very much like that of Dr. Miller's, only that the sections must be taken off before the wide frame can be removed. The only objection I find to it is, that the space between the guide-back and the nearest upright occasionally gets clogged with wax or propolis. Instead of hinging the uprights to the bottom-board, as mentioned in the article, to facilitate cleaning, the guide-back with guide-posts attached might be made removable for this purpose.

Against wide frames, as got from you, I have only this objection—that they are not exact, being generally too large, and leave too much space for propolizing. In many there is as much as one-eighth to three-sixteenths of an inch space between the under side of the top-bar and the top of the upper tier of sections. Next winter I shall overhaul them all and form them over a block of just the size of six sections, with merely play enough to insert and remove the sections without crowding.

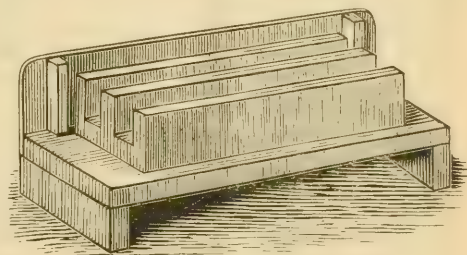
In favor of wide frames, I must say that, after using them for five or six years, and gradually increasing their number, until I now have about 700, I have yet to find the first cell of brood in any section placed in a wide frame, and I do not think I could find one cell with pollen in 1000 sections. I use no honey-board, but simply have a bee-space between the brood-frames and wide-frames. I use full sheets of worker fdn. in the sections, and I find that it pays me, as my combs are perfect, plump, and full weight; whereas the first year when I used only narrow starters, nearly every comb fell 2 to 4 oz. short of a pound.

WM. MUTH-RASMUSSEN.

Independence, Cal., Apr. 18, 1887.

Below we give the article referred to:

One of the difficulties in the production of comb honey is to get the sections out of the wide frames without injury, and with as little loss of time as possible, to prevent the bees from uncapping the cells, which they will do if they are given time enough. If the separators and the wide frames could be made so exact that the former could clasp the latter and keep their place without falling off, the separators might be removed and the bees brushed off before they had time to do any harm. But such accuracy seems to be out of the question; besides, separators are now made of such thin, flimsy material that the turned-over ends have no strength in them, and it therefore becomes necessary to nail them permanently to the frames. This increases the difficulty of removing the sections, and to obviate this difficulty I have devised, and all through the present season used, the following implement, as shown in the engraving:



MUTH-RASMUSSEN'S DEVICE.

Two boards, $12\frac{1}{2}$ inches long, $3\frac{1}{4}$ inches wide and $\frac{1}{4}$ inch thick, and one board of the same length and width, but five-eighths of an inch thick, form the uprights with the thick board in the middle, and spaced so that they will slip easily through the frame, between and outside of the separators. They are joined together and held in place at each end by a strip $\frac{1}{4}$ inch thick, $1\frac{1}{2}$ inches wide, and $8\frac{3}{4}$ inches long, let into the uprights, flush with the bottom.

A one-inch dressed board, $16\frac{1}{4}$ inches long and nine inches wide, is provided with two strong cleats underneath, and to one edge is nailed a thin board, which forms the guide-back, and projects three-eighths of an inch above the uprights. To this back, and coming even with its top edge, are fastened two upright guide-posts, five-eighths by seven-eighths of an inch thick, the narrow side nailed to the board. To the two outside uprights, even with their bottom edge, and projecting inward, are nailed two strips of ordinary frame-material (not shown in the engraving). By these strips the uprights are fastened, with nails or screws, to the one-inch board in such a position that, when a wide frame is laid on top of the uprights, the bottom bar of the frame will slip easily down between the guide-back and the nearest upright.

TO USE THE IMPLEMENT.

First brush off all the bees you can, trim off any comb or honey sticking under the bottom of the frame, again brush off the bees that have come out from under the separators, then lay the frame down on the uprights, separators downward, bottom of frame between the two guide-posts, and snug against the guide-back. Now press on the

corners of the frame, alternating from the bottom corners to the top corners, and the frame will sink down and out of the way until the separators strike the two connecting strips at the ends of the uprights, and leave the sections lying free on top of the uprights, when they may be quickly picked up with the fingers and any bees remaining on the under side brushed off. And here let me say, in parenthesis, that for brushing bees nothing is better than a single large feather from the wing of an eagle or a vulture, the shaft of the feather inserted in a short piece of broom-handle, which makes it convenient to manipulate, and prevents the feather from being blown away and lost.

TO REMOVE THE WIDE FRAMES.

Place the thumbs on top of the guide-posts, and, with the other fingers grasping the side pieces of the frame, lift it out of its place.

To facilitate cleaning the implement the uprights might be hinged at the front and fastened with two iron pins at the back, but would then require a substantial bottom (instead of the two pieces of frame-material above mentioned) to prevent them from getting out of shape.

The device with the above dimensions is for wide frames holding "Simplicity" sections, as used in the "three-quarter Langstroth" hive. By making the implement one-fourth longer it will answer for the standard Langstroth frame.

Independence, Cal.

WM. MUTH-RASMUSSEN.

THE IMPORTANCE OF GIVING YOUR COUNTY.

A LITTLE STORY FROM REAL LIFE.

IF the friends who are so careless and heedless as to send orders without giving their county, as well as town and State, could see this thing as we see it, it seems to me they would make the dust fly until they could get the name of the county in which they live, printed on their stationery. Let me give you one illustration among many. A neighbor of ours purchased our forty-horse-power engine, and told us to load it on the cars and he would send directions for shipping. When the directions came they were simply "Osceola Junction, Michigan," and nothing further. Now, the Postal Guide, the railroad guides, Bradstreet's Directory, and, in fact, every thing we could hunt up on the subject, made no mention whatever of such a town as Osceola Junction; and in despair we started the car containing the engine, hoping that, when it got into the vicinity of Michigan, somebody would know where Osceola Junction was. Very soon, however, came back a telegram, saying the engine was stopped until the county could be given. Meanwhile the owner of the engine had loaded up his household goods and marked them the same address he gave us, while he went forward to make arrangements for setting up his new sawmill in the town of Osceola Junction. We could not send him any bill of lading, because we did not know where his postoffice was; but we finally found (from the railroad guide) there was a town called Osceola, in Houghton Co., Michigan; but it is a new town, and there is no postoffice established there. To make sure, we wrote to the two nearest postoffices. Pretty soon came a telegram from our friend. But even this telegram did not tell us the county either, and it was started from a point different from any of the three heretofore tried. Finally our friend was obliged to take an expensive trip from the center of Michigan

back to Medina, to find out where his engine and goods had gone to, only to learn that they had gone away up into the northwestern part of the State of Michigan, in the Grand Traverse region, while Osceola Junction is really in the central part of the State. It will probably cost him hundreds of dollars before he gets his stuff where he wants it, and gets his sawmill started—all for the want of a county!

It now transpires that Osceola Junction is in Osceola County, in the central part of the State of Michigan, and the nearest postoffice is Tustin; but the town of Osceola is located in Houghton County, in the northwestern part of Michigan, about 360 miles from Osceola Junction.

Now, then, quite a number of you have written back saucily and sometimes mad, because we told you we could not ship goods until you would tell us what county you live in; and the very worst place in the world to find is some new town on a railroad. Many seem to think, that if they give the name of the railroad and station it is enough; but if you will try shipping goods as we do, you will find it is not. Now, once more, inasmuch as the railroad companies refuse to receive goods unless the county is given, and as there are a good many towns of the same name in almost every State, we must emphatically refuse to be in any way responsible for errors in shipment, unless you give the name of the county you live in. I presume you will be astonished when I tell you that we have letters from people who do not know what county they live in; and one poor friend didn't even know the name of his postoffice—at least, he did not know how to spell it so we could identify it. If you can not do any better, ask your postmaster the name of your town, county, and State; then go to the nearest printing-office and tell them to print it on your envelopes and stationery. You can then send money without loss, and write letters, and not bother your head about any thing but your signature. By the way, I think you had better have even that printed on your envelopes and on every sheet of paper. If you would only all do it, it would save you hundreds of dollars and ever so much vexation and disappointment and ill temper.

MORAL PATENTS.

A KIND LETTER FROM THEODORE O. PEET, THE INVENTOR OF THE PEET CAGE.

SEE by April GLEANINGS that you have placed to my credit \$25.00 as a deserving remuneration, in addition to the \$25.00 paid to me some years ago for the privilege of making and selling the Peet queen-cage. This is very gratifying to me—not so much that I get the money (as at present I am not particularly in need of it, although we all, and especially bee-men, can find a place for all the dollars they can capture honestly), but it is a satisfaction to know that my little invention is appreciated and spoken of in so kindly a manner. You know I did not ask for the first \$25.00, but offered to allow you or any other man, who felt inclined, to use it and make and sell all he could; but as you insisted on paying for it, I consented to take

a \$25.00 watch, which I hold and carry to-day—the best timekeeper I ever owned, and which is a perpetual reminder to me of yourself and my own bee-life in former years, when my wife used to say I had bees on the brain. I must say, that I admire your manly way of treating the fraternity. I have been so absorbed of late years in my business in New York that I have had to drop out almost entirely from the cluster of bee-keepers; and but for the fact that I receive a call now and then from some of them I would forget all I ever knew of bee culture. But I am a good deal like the old war-horse that came to be hitched to an old dirt-cart in his latter days. When hearing a bugle-call in the street he jumped to answer it, and cart and all bounded through the streets as though charging an enemy in battle. I remember with great pleasure you and Scofield making me that little call last fall on your return from the convention, and I thank you for it, and shall, if opportunity ever occurs, return it at the Home of the Honey-Bees. I am pleased to see that GLEANINGS is still prospering, and that her *child* has grown so much like its mother that she is recognized only by the date and the juvenile department. I well remember the first issue of the children's GLEANINGS; and, if I mistake not, I put my thought in complimentary shape in an editorial in the *Bee-Keepers' Exchange*, using, as a boom, Longfellow's poem, "The Children's Hour." Well, God has blessed you, friend R., and I rejoice with you, and I give you my hand in hearty shake, and say, with all my heart, "May he continue to bless you, not only with this world's goods, but with his Holy Spirit, that you may glorify him in this life and enjoy him for ever."

THEODORE O. PEET.

Arlington, N. J., May 5, 1887.

HIVING SWARMS.

HOW LONG IT TAKES A BEE TO GO AND RETURN WITH A LOAD.

FROM the A B C book and Cook's Manual I have gained more knowledge of apiculture in one year than I should have gained in a lifetime of experience without aid from any other source. I could not think of going without GLEANINGS. Especially do I like the Home Talks and My Neighbors. I have been able to keep my tobacco pledge. It will soon be two years since I threw away my pipe. I feel better, and am able to do better mental work without it.

During the past two years, when bee-hunting, and at other times, I have carefully timed bees, and find that, on an average, they will fly 100 feet to their hive (or tree), unload, and return in 2 minutes. They will fly half a mile and back in 7 minutes; one mile in 12 minutes, and $2\frac{1}{2}$ miles in from 27 to 30 minutes. From this it will be seen that bees will fly one mile in 5 minutes. Of course, on a very windy day it would take them longer. Trips within 2 miles were made with surprising regularity.

On page 20 of his work on comb honey, W. Z. Hutchinson says that the brood-nest should not be contracted so as to be tall and thin, but should be low and flat, but he gives no reasons. I should be glad to hear them. Would it not be an advantage in increasing artificially to leave the queen and the fullest comb of brood in the old hive, on the old stand, the remainder of the contracted brood-nest

to be filled with starters only, and the super to be placed above a zinc honey-board, the remainder of the brood and combs to constitute the new swarm? By this means all the advantages of the empty brood-nest are secured, the same as in natural swarming. I should like to know, also, if it pays to hive the new swarms in an empty brood-nest, why would it not also pay at the beginning of the honey-harvest, when working for extracted honey, to proceed as above, but, instead of making a new colony of the removed brood, to place it in the super, of course using a queen-excluding honey-board. I have tried Doolittle's queen-cell protector. It works like a charm.

WILLIAM E. GOULD.

Fremont, Mich., May 5, 1887.

The facts you give us in regard to the length of time it takes a bee to go and return are very valuable, friend G., and we will try to have them embodied in the next edition of our A B C book. I have made some similar experiments, but I was inclined to think a bee would fly rather more than a mile in five minutes, unless hindered by the wind, intervening forests, or something of that sort.

THE NEW SOUTH.

THE EFFECT OF GRADUAL ELEVATION ON THE HONEY-FLOW.

THE reason that I gave last fall why this section should prove to be favorable for bees, that the sides of the mountains prolong the flowering season, seemed to be questioned by a friend in Tennessee. I would reply, that I know not how small a difference in his section would result from a very gradual slope for a long distance; but it is a fact here, that an elevation of nearly 2500 feet in 3 miles does make a difference of from 4 to 7 days (according to the weather in the spring); and to the top of "Flat Top," which towers above us 1000 feet higher, the flowering and leafing out of the trees is several days later still; so that the flowering of the top is delayed often two weeks after the trees in the valley. This prolonging of the flowering season I consider constitutes the slope of this mountain ridge a desirable place for bee-raising, besides being adapted to most of the varieties of fruits. Pure air, the best of water, a mild climate, cheap land, good soil, and low taxes, are reasons enough to invite industrious and enterprising farmers and apiarists to come and settle. As some proof, in 1850 Virginia reported more honey and wax than Ohio; and in 1860 she raised almost as much; but since the days of improved hives, of course Ohio has taken the lead. Bring this same enterprising spirit into the South, and I see no reason why she should not again equal if not surpass the North, having longer summers and shorter winters. I am not a bee-keeper. It is only because I am fully occupied otherwise; but I am not the less an interested reader of GLEANINGS. In fact, it is my preference of all the fourteen papers I take. I could heartily wish its subscription-list were 70,000 rather than 7000. Now that I am telling my likes, it will not be transcending the department of "home interests" if I name the next best. It is the *Sunday-School Times*, published weekly at 1031 Walnut St., Philadelphia, Penn., 11 by 15 inches, 16 pages. To new subscribers, \$1.00 per year. Though intended mainly to explain the

Sunday-school lesson, with articles from about fifteen different authors, it has other practical subjects; but, as I take it, it makes the best Sunday reading, especially where one does not have a chance to attend the preached word. I must not forget to state, that of the mountain slope some of it is steep and rocky, but the most of it can be plowed, and there is but very little that is not suitable for fruit-growing. There are two or three cheap properties for sale now; and since the South has taken such a new start forward, it will not be long before prices go up here as they have in Georgia and Alabama.

A. H. VANDOREN.

Mons, Bedford Co., Va.

THE SINGLE-TIER VS. THE DOUBLE-TIER CASE.

THE DECISION OF THOSE MOST COMPETENT TO DECIDE.

AS there seemed to be a little variety of opinion as to whether the double-tier shipping-case is preferable to the single-tier case, or vice versa, we submitted the matter to those who quote prices on honey in GLEANINGS. We accordingly sent them the following note, together with a list of questions to be answered:

Dear Sirs:—As you quote prices regularly in our journal, GLEANINGS IN BEE CULTURE, we take it for granted that you are competent to decide what kind of a comb-honey shipping-case sells best with you. We shall therefore be very greatly obliged if you will answer, briefly, the following questions, as we desire to publish the same, together with your replies, in GLEANINGS:

1. Do you prefer the single or the double tier shipping-case for retailing and shipping comb honey? In other words, which kind of shipping-case is the most salable, and the most easily handled—the one having only one horizontal tier of sections, or the one having two horizontal tiers of sections? Please give your preference in either case, and your reasons therefor.

2. Do you prefer to have the shipping-case glassed on one or both sides, and why?

3. What size of shipping-case do you recommend—that is, in your opinion how many pounds of honey should they hold to sell the most readily?

By answering the above questions you will not only confer a favor upon bee-keepers, but a benefit to yourselves as well. What we want is an expression from those most competent to decide in this matter of shipping-cases, in order that bee-keepers may crate their honey according as the market seems to demand.

Very truly yours, A. I. ROOT.

1. We prefer the single-tier. It is less liable to damage by leaking.

2. One side, because we believe in selling as little glass as possible.

3. Twenty to 24 lbs. CLEMONS, CLOON & CO.
Kansas City, Mo., May 7, 1887.

1. I prefer the single-tier shipping-case. It has all the advantages of any other, and none of the disadvantages.

2. Glassed on one side is sufficient; and, indeed, I am of the opinion that it has advantages over double, or two sides.

3. For trade in general, crates should contain 12 to 24 lbs. each. R. A. BURNETT.
Chicago, Ill., May 9, 1887.

1. We prefer single-tier shipping-cases. Honey

carries better, and is easier to take out of the cases, and is preferred by retailers.

2. In regard to glass ends, it does not make much difference, if honey is packed straight, whether one or both ends are glass.

3. Twelve and 24 lb. cases suit our market, as they are lighter to handle, less liable to breakage, and are more convenient for family use; 12-lb. packages are usually sold in cases as they are. Parties in putting up honey should be careful to mark their packages correctly—gross and tare, especially the tare. The gross weight we can get if omitted.

W. B. WESCOTT & CO.

St. Louis, Mo., May 7, 1887.

1. We have handled two-tier shipping-cases from the beginning of the time when comb honey was shipped to our city in quantities and in good style. As soon as some of our enterprising friends commenced to ship us single-tier cases, we found that honey would arrive in better condition, and was, consequently, of better sale. We are decidedly in favor of single-tier honey-cases which hold no more than 24 one-pound sections, or more than 15 two-pound sections. If they hold less, it is nothing against them.

2. They should have glass on each side, not on their ends, so that the most part of the contents of the case is exposed to view.

CHAS. F. MUTH & SON.

Cincinnati, O., May 7, 1887.

1. I very much prefer the single-tier case for shipping and retailing honey, as it is much more safely shipped, and not so liable to be daubed with honey from broken sections; and on account of its smaller size, customers will often take a whole crate when they intended buying only a few pounds, and I think they show off honey to better advantage, and are always the first to be sold when side by side with the double-tier in commission-houses.

2. I also prefer glass on both sides, as I think it helps the sale by helping the appearance.

3. The size that gives the best satisfaction in this market holds 12 one-pound sections.

M. H. HUNT.

Bell Branch (near Detroit), Mich., May 10, 1887.

1. I prefer the single-tier case. It is more salable, easier to handle, less liable to break, and the bottom tier is not soiled by leaking.

2. I prefer my shipping-cases glassed at the ends; the glass being smaller, it is less expensive, and not so liable to break.

3. Small cases sell best from 12 to 24 sections, $4\frac{1}{4} \times 4\frac{1}{4}$.

The importance (in my experience) of glass is this: I had about 2000 lbs. shipped by freight, in cases that could be easily seen, which came through in good shape, in cases holding 50 lbs. Again, I had 600 lbs., in cases of the same size, with one small glass about 3 inches square in one end, and could not be easily seen. The honey was about two-thirds broken down, and the rest badly soiled. That is my reason for single-tier cases, well glassed.

EARLE CLICKENGER.

Columbus, Ohio, May 9, 1887.

1. We have no decided preference; have handled the single and double tier crates largely, and found good demand for both. We would rather indorse the double-tier crate for one important reason;

namely, a dealer, purchasing or ordering honey, will just as readily take a large crate as he would a small one. This way more honey would be disposed of at less expense to the producer.

2. We prefer to have the crates glassed on both sides (provided the sections are unglassed), as the honey will show up to better advantage, besides improving and adding to the appearance of the crate.

3. For a single-tier crate, we prefer the crate to hold 24 or 25 combs, either 4x6 or 5x5.

For a double-tier crate we would recommend a crate to hold 32 combs, 16 to each tier, 4x4, showing 8 combs on each side. We can not indorse a larger crate; for instance, one holding 48 combs, as it is too heavy to be handled carefully while in transit.

H. SEGELKEN,
Manager of Honey Dep't of
THURBER, WHYLAND & CO.

New York, May 9, 1887.

After receiving the replies above, and as the answers seemed to favor the single-tier case, we wrote to Dr. Miller, knowing that he rather preferred the double-tier case, and requested him to give his preferences, and briefly how to construct the case. His answer appears below:

1. The double-tier shipping-case has the objection that there is danger of injury to the lower tier of sections by the upper tier resting upon them. It also presents a bad appearance, to have the bottoms of the upper tier and the tops of the lower tier show in the center of the glassed side. These are the two principal objections to the double tier; but by putting a bar across the middle of the glassed side, and using, instead of a single piece of glass, two pieces of the same size as are used in the single-tier cases, the second objection disappears. The first objection is removed by using a false bottom between the two tiers, so supported that no weight comes upon the lower tier. We have, then, in favor of the double tier, less cost per section, and a finer appearance when piled up, as a greater proportion of glassed surface appears in the double-tier pile. Thus the double tier has the preference.

2. On one side, as it shows just as well and costs less.

3. Twenty-four one-pound sections.

Marengo, Ill. C. C. MILLER.

CALIFORNIA.

HONEY-YIELDING PLANTS AND TREES OF ELDERADO COUNTY.

OUR honey season in Eldorado County commences about the first of February, and ends about the last of June. July, August, and September are the dry months. In October the fall flowers commence to bloom, and continue in bloom until about November 15th. The first thing that the bees work on here is the willow, from which they obtain a great amount of pollen. Manzanita commences to bloom a few days later, and continues to bloom for about six weeks. Manzanita is a pretty good honey-yielding bush. I never saw a season yet that bees did not work on it. Chaparral is next in bloom after manzanita. Bees worked pretty hard on chaparral this season. California lilac commences to bloom after chaparral. There are five or six different species of California lilac, all of which are good honey-yielding

bushes. California lilac is the most important of all the honey-yielding bushes of the Sierras.

Maples, dogwood, wild cherry, and plum are good honey-yielders. There are several species of wild clover which the bees work on. The most important one is Indian clover. About the 15th of March, madrona commences to bloom, and continues for about two weeks; bees work very hard on it some seasons. Sometimes thousands of bees are at work on a single tree.

Poison oak, sage, pennyroyal, and cardinal flower are good honey-yielders. Folocio commences to bloom in May, and continues until the last of June. It is the best honey-plant that we have here. California lilac yields more honey, but it is not as good. The honey from folocio is of a beautiful straw color, and weighs about 11 lbs. to the gallon. Holly, buckeye, and wild coffee are good honey-bushes. In July and August, bees do not work much—just enough to keep out of robbing each other. Mints, smartweed, and hartshorn bloom in the fall. Hartshorn yields considerable honey. Italian bees stored several pounds of honey from it while the black bees did nothing. S. L. WATKINS.

Grizzly Flats, Cal.

HOW I DISPOSED OF 4600 POUNDS OF HONEY.

SOME GOOD SUGGESTIONS FROM G. F. ROBBINS.

FRIEND ROOT:—I have about finished my crop of honey for 1886, and now shall I tell you how I did it? When the gathering season closed and the marketing season opened, I had gathered in what I had carefully estimated at 4600 lbs., of which 3050 was comb honey and 1550 was extracted. Squads of honey had been raised, and city and village markets were alike glutted. How I should dispose of this, the largest crop I have had, with more competition in a day than I had ever had before in a week, was the problem. This is how I solved it:

1. I got one or two merchants in the three villages near, to sell for me. They did from a little to nothing for me. They sold for me about 250 lbs.

2. I worked my home market by personal effort for all it was worth. No one, to whom I thought I had any chance of selling, escaped me. I was more successful. I sold nearly 800 lbs. in this way. Much of this patronage was secured in exchange for work and various commodities—nearly half, perhaps, in which no money was handled.

3. By corresponding with parties in Kansas, with whom I had had some business or personal acquaintance, I sold 430 lbs. Another man in that State ordered, through a relative here, 115 lbs. of extracted honey.

4. I canvassed the hotels of Springfield. At only one did I succeed in making a sale. That concern took in, at different times, nearly 200 lbs.

5. I worked, when convenient, with private parties in Springfield, including business men. I even tried peddling a little, commencing with reluctance and quitting with disgust. My efforts in these directions were the most barren of all. I sold in that way, and traded, about 175 lbs.

6. I shipped about 635 lbs. to Cincinnati, about the holidays, in 48-lb. cases. It was the finest of my honey—the very pick. But being in large cases it seems to have dragged along until in March, when I

was willing to settle up at 9 cts. per lb. for the lot. It netted me less than 8 cts. I shall not ship much more at that rate.

I worked hard among the groceries of Springfield. They took something over 1600 lbs. Here was the field of battle. Here I wrestled hard for prices. Generally I either compromised or surrendered. I had to. The Muth 2-lb. honey-jars took fairly well. All I sold to grocers, of extracted honey, some 600 lbs., was in this shape. I realized from 10 to 12 cts. for comb honey, and about 8½ cts. for extracted. I got 12 cts. at the hotel. To private parties I charged 14 cts. for comb, and 10 cts. for extracted. At home my price for nice comb honey was 12½ cts. Competition compelled me to come down to that. I sold extracted at 8 and 10 cts. For broken and some very inferior comb honey, I got 8 and 10 cts. I obtained 13 cts. for the comb honey I shipped to Kansas, and about 8½ cts. for extracted, packages thrown in. I shall try that kind of shipping again.

I gave away about 125 lbs. to relatives, brothers chiefly. All this foots up to about 4150 lbs. Allowing 50 lbs. for leakage and shrinkage, there are some 400 lbs. yet unaccounted for. What became of that? Why, bless your heart, we ate it.

You see I have worked hard to sell my honey to advantage. I did not pack it up and lump it off to a big city, and take the chances. Yet one will have to produce cheaply indeed to make a living at even the prices I obtained. My sales footed up to \$422.85. I obtained about \$22.00 for beeswax — in round numbers, \$445 from 57 stands of bees in a flush season, with glutted markets, or less than \$400 net.

GEORGE F. ROBBINS.

Mechanicsburg, Ill., May 5, 1887.

SWARMING, ETC.

SOME SEASONABLE HINTS FROM G. M. DOOLITTLE.

PICKING up a bee-paper lately I found this statement given by quite a prominent apiarist, regarding swarming: "If we allow bees to swarm they will cast their first swarm on or about the commencement of the honey season; and in about twelve days we may expect the second swarm; and in four days more the third. I think this is the average time of swarming; therefore it is sixteen days from the time the old queen leaves the hive with the first swarm until the third swarm issues." Having allowed natural swarming in my apiary during all of my 18 years of bee-keeping, and believing that the above is not correct, also knowing that much of the interest of bee-keeping hovers about the natural swarming of bees, I thought I could please the readers of GLEANINGS no better at this time, just as swarming is about to commence in the Middle and Northern States, than to tell some facts as I find them, relative to when swarms may be expected.

To the beginner this is a matter of much importance; for by them, hours and days are spent needlessly in watching bees, which a little knowledge of the matter would save, as well as to do away with much anxiety in the matter. As to when the first swarm of the season will issue, be the apiary large or small, I have never known it to fail that such a one came with the sealing of the first queen-cell, this being the rule with all swarms; but after

swarming gets under headway in a large apiary, especially with the Italian bees, some swarms issue without any preparation for swarming at all; others, when eggs are laid in queen-cells, etc.; but I never knew such a case with the first swarm of the season. Understand, I do not say that a first swarm of the season never did issue without this preparation, but only that I never knew one to do so. Then we have the sealing of the cell as the indication of a first swarm. Now, all persons familiar with queen-rearing know that the time the queen remains sealed in the cell does not vary much from seven days; hence in seven days after the old queen leaves with the first swarm, the first young queen is hatched. If a second swarm is to issue, this queen begins to peep or pipe when from 6 to 8 hours old. If she commences to peep I never knew a swarm to fail to issue, unless the object of the bees was thwarted by the keeper or exceptionally bad weather. This piping is kept up for from 36 to 45 hours, when, unless kept back by foul weather, the second swarm issues.

An item worthy of note is, that the weather must be very bad to keep after-swarms from issuing, for they often issue on cloudy days, or on the least streak of sunshine in a rainy day. Then, again, they come out at all hours of the day, from five in the morning till seven at night, while the time of issuing of first swarms is usually between 9 A. M. and 4 P. M. Then, as a rule, all second swarms may be expected in 9 days after the issue of the first swarm, instead of 12, as our friend quoted tells us. If the bees conclude to swarm still further, after the second swarm has issued, another queen is allowed her liberty while the rest are kept confined in their cells, being fed through holes in the cell, so they are virtually of the same age and strength as the one which has her liberty. The queen let loose at once begins peeping, keeping it up for about the same length of time the others did, so that the third swarm comes two days after the second, or 11 days after the first. If a fourth, fifth, or sixth swarm issues they come out the next day after the third, and each other, so that, should the sixth swarm issue it would come on the 14th day after the first. Five swarms is the highest number I ever knew cast from one colony during our swarming period; but I believe as high as six have been reported.

As I believe all after-swarms are a disadvantage, I wish to tell the reader, before closing, what I consider the simplest way of stopping them when the first swarm is hived on a separate stand, instead of on the Heddon plan. If the first swarm issued according to rule, the first young queen will be hatched in 7 days, and, unless prevented, lead out a second swarm on the 9th day. Taking advantage of this fact I wait 8 days after the issue of the first, when the hive is opened and all the queen-cells are cut off, when we have a sure thing in the matter, which can not be said regarding any other plan dependent upon the cutting of queen-cells. Where a person has not too many hives I find it as good a way as any to listen for peeping in the evening after it is thought a young queen has hatched; and if the queen is heard you are certain of her presence among the bees. If not heard, then listen the next evening, and so on till she is heard, when you know you are safe in cutting all cells. In cutting these cells it is well to shake the bees off the combs or else you may fail to see all of them, in which case, if one remains a swarm is sure to issue.

This article is written mainly for beginners, for all of the older heads have established plans of one kind or another, which—ahem!—are probably any of them better than the above. If so, won't they tell us about them? G. M. DOOLITTLE.

Borodino, N. Y., May, 1887.

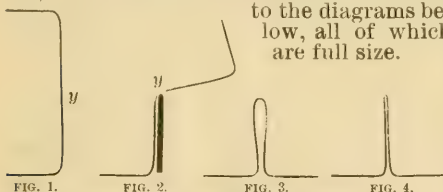
THE T TINS.

THE NEW MACHINE FOR MAKING THEM.

WHEN the T tins were first made they were simply two L tins soldered together thus:  in fact, this was the only way  in which they could be constructed with ordinary tinner's tools. As soon as there was a demand for the T super, it became evident that the T's must be made of one piece of tin. However desirable this might be, there was the difficulty of bending the T's out of one piece of tin. We studied on the matter for some time, and finally Mr. I. R. Good, of Nappanee, Ind., said he would sell us the T-tin folder which he had constructed. We told him to send it on, partly because we needed just such a machine, and partly because we were curious as to its construction.

Before we describe the machine itself it will be necessary to explain how the T's are bent, and we will therefore refer the reader

to the diagrams below, all of which are full size.



THE T TIN AND HOW MADE.

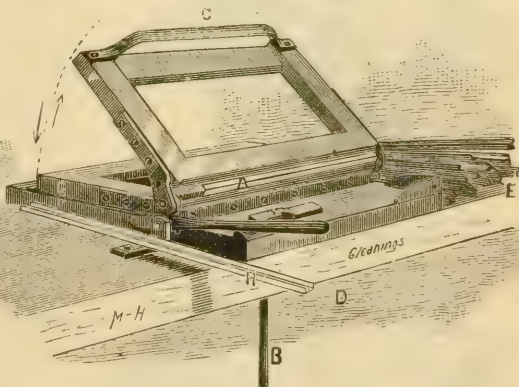
We first cut out a lot of tin into strips $1\frac{3}{4}$ in. long and $1\frac{1}{8}$ in. wide. A quarter-inch fold is made on each side of the tins, as in Fig. 1. While the gauge of the folder is set we will fold all the troughs we need. So far, common tinner's tools are equal to the requirements. It is now necessary to bend Fig. 1 at the point *y*, into Fig. 3. In order to bring the fold to the right place it will be necessary to have some sort of a projection, as in Fig. 2, shown by the heavy black line. This projection should be held firmly, for the folding of the tin produces considerable strain. We next want some kind of device whereby we can easily, quickly, and accurately make the fold at *y*. To illustrate more clearly, we will suppose that we have procured two boards whose double thickness is such that they will slip snugly between the folds in Fig. 1. They should be hinged at *y*. Now, then, having the metal projection as in Fig. 2 secured in the proper position, we simply open the two hinged boards as we would the covers of a book. When nearly half open, the T

tin will be bent as in Fig. 2; finally it assumes the form of Fig. 3.

This is, in fact, precisely the manner in which our new T-tin folder operates, a cut of which we give below. It is represented as in the act of bending a tin which is now bent as in Fig. 2, below. F and G are two cast-iron frames hinged on the sides, as shown, so as to revolve on the line at A. The lower iron frame G is also hinged to a piece of plank at the opposite side. A strip of heavy strap iron (the purpose of which was described and is represented in Fig. 2 by the black line) of the length of the machine is screwed on to the piece of plank upon which the frames rest below A, as shown. It projects just high enough to make a $\frac{3}{4}$ fold, as illustrated in Fig. 2, and should then be on a level with the crack between the iron frames.

To operate, grasp the lever shown on the left; press downward so that the front side of the two frames is raised above the strip of strap iron. Hold the lever down until you can pick up a trough as H, and slip it on to the rabbeted edge, which is just wide enough to allow the trough to fit snugly. Release the hand from the lever, permitting the point A to drop into position. The strap iron is now just right to make the fold at *y*, Fig. 1. Now with the right hand grasp the handle C. When revolved as in the engraving, the tin A is folded as shown in Fig. 2. While C is revolving, the foot should press on the treadle attached to the rod B, to hold the frame from slipping above the strap iron. When C is revolved to E, the tin is bent into Fig. 3. The lever is now grasped, a downward motion frees the frame from the strap iron, when the T tin can be slipped off and thrown upon the pile E.

The machine friend Good sent us, although made of wood, did not differ substantially in principle from the iron one we have just described. We found, however, that where a large quantity of tins is desired, wood is hardly firm enough to stand the strain of folding, hence necessity compelled



GOOD'S T-TIN FOLDER, WITH OUR IMPROVEMENT.

us to make one of cast iron, as shown above. One who desires to fold T tins sufficient for his own use will find the wooden machine ample for all his purposes, and we will fur-

nish it complete for \$3.00. On the contrary, a supply-dealer will need an iron machine as above, and we will furnish it for \$10.00.

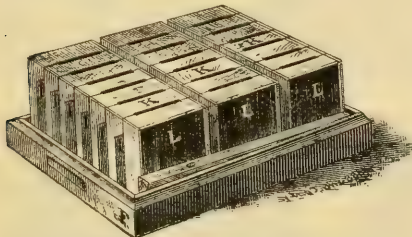
With either of the above machines you will need a common tinner's folder, and, for that matter, a tinner's squaring shears, to make the tin troughs as in Fig. 1 and H. Moreover, it will be absolutely necessary that the tin be cut up into strips accurately, and that the folds be made perfect. If you purchase a T-tin machine you had better instruct your tinner to make the tin troughs. Home-made machinery, which you might be able to construct for the purpose, would not generally be accurate enough.

In this connection I may mention why we prefer to have our T tins made as in Fig. 3 instead of as in Fig. 4. It has been found by experiment, that where the upright of the T is not pressed together tightly, as in Fig. 3, it will be a great deal stronger; consequently we make all our T tins like Fig. 3.

KRETCHMER'S T-RAIL SECTION-CASE.

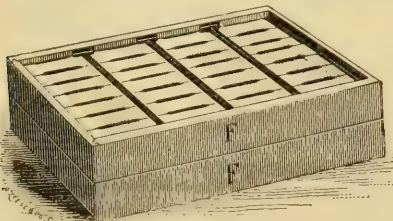
HOW CONSTRUCTED, AND SOME OF THEIR ADVANTAGES.

THE illustration below will be recognized by many bee-keepers of the West, it being the T-rail section-case, composed of two horizontal rims, or hoops, arranged for two-pound sections, first illustrated in 1880. In order to space the sections correctly, the upright stem of the inverted T rail is made of wood, while the horizontal part is a strip of tin, fastened to the upright wood, making a stiff T rail which supports the sections *K*; separators, *I, I*, are set between the sections, resting on the T rails; a wedge, *O*, within the beveled case, clamps all closely, while a Simplicity half-story covers the exposed part of the sections, with proper bee-spaces above and below, as they may be tiered up and alternated.

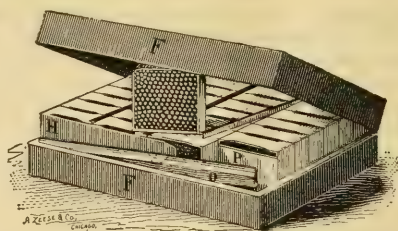


THE T-RAIL SECTION-CASE.

About the year 1879 I constructed the same style of section-case for the one-pound, or $4\frac{1}{4} \times 4\frac{1}{4}$ sections, with the T rails made of two pieces of tin, which has since been improved, and of which I give the following illustrations:



SECTION-CASE FILLED AND CLOSED.



SECTION-CASE OPEN; PART OF SEPARATOR H BROKEN AWAY.

This is composed of two horizontal rims, or hoops, *F, F*, beveled on 3 sides from the center to the outer edge (the side opposite the wedge being straight); adjustable tin T rails support the sections; any width of the $4\frac{1}{4}$ section may be used. Separators, *P*, may be set between the sections, resting on the T rails; a wide wooden separator, *H*, closes the ends of each row of sections, which also prevents the sections from being attached to the case; and a double-beveled horizontal wedge, *O*, presses all sections tightly. The pressure, being near the center, holds the sections square, with equal pressure at both top and bottom. This pressure leaves no space for deposit of propolis. The inside bevels of the case assist in adjusting the sections; the last sections can be inserted or removed as readily as the first one. The upper rim of the case is beveled exactly like the lower one, and slips readily over the sections, while the upper unbeveled edge holds the sections tight and close, like a hoop on a barrel. These section-cases are invertible, and may be alternated and tiered up, with a bee-space at either top or bottom, at pleasure.

As the case is made of two equal hopper-shaped rims, the sections may be removed therefrom *either side up*. We simply lift off the rim that is uppermost, draw the wedge, and any or all sections may be removed in the easiest possible manner; none are cracked or broken, none are attached to the case; and, being wedged, no room is left to propolize the edges.

These cases fit *inside* of any Simplicity or L. hive now in use, sitting either directly on the top of the brood-frames, with or without a honey-board under it, or can be made to fit even with the outside of any hive. In the construction of this case, as above described, strips of boards full $2\frac{1}{4}$ inches wide (usually too narrow for other parts of the hive), are first ripped slanting in two, thus forming the upper and lower part, and beveling them at the same operation. Where the bee-space is desired above the sections (as shown in one of the illustrations), we cut on the inside a saw-kerf $\frac{3}{8}$ from the upper edge all around. Into the end pieces we slip strips of tin, and nail through it, securing at once the proper distance. Projections from the T rails enter into the grooves cut into the sides, and in which they are movable, to either the $4\frac{1}{4}$ or 6-to-L-frame sections; and by it, the upper T rails are removed with the upper rim; or, if loose T rails are desired, a piece of heavy tin, $\frac{3}{8}$ inch square, is inserted and nailed into this groove, which supports the rails, securing proper distance and uniformity. E. KRETCHMER.

Coburg, Montgomery Co., Ia., May 9, 1887.

Your arrangement is quite ingenious, friend K.; and, as I have said before, if we were really satisfied that it is advisable or desirable to reverse our sections, your plan

would be, perhaps, one of the simplest arrangements that can be devised. We do not notice any arrangement to clamp the hopper-shaped rims. F, F, together, but perhaps none is needed.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

SWARMING OUT IN MAKING ARTIFICIAL SWARMS.

I DIVIDED a hive for a neighbor, and every thing went on nicely until the queen hatched. She destroyed all the cells and swarmed out the next day, taking with her about half of the bees. I was not there when they swarmed, but came along about six hours after. He had managed to hive them nicely, and left the hive about 30 feet from where they settled. The bees were passing from one hive to the other at a rapid rate, but were quiet. I examined the hive they came from, and they had not a queen. I took them back to their old home, put them in, and in a few minutes they were all quiet. What I do not understand is, why the young queen should swarm out. It was not for the want of honey, for they were in a new hive, and every thing was tidy, and they had some brood.

WHY THE BEES DID NOT WORK IN AN ARTIFICIAL SWARM.

I also divided a hive and put in a queen-cell. The bees would not come out when the entrance was open, and would have stayed there and starved had they not been fed. After the queen was 24 hours old they began to stir out a little. They seem to be doing nicely now. They had plenty of bees to keep the brood warm, and work at the same time. Why did they act in such a manner? J. F. BLENETT.

Smithville, Monroe Co., Ind., May 16, 1887.

Friend B., it is a little hard to tell why the young queen swarmed out the next day after she was hatched. Such things sometimes happen in making artificial swarms.—In regard to the worker bees that would not go out of the hive, it was because they were not yet old enough. When you divide a colony, the flying bees will almost always go back to their old stand—that is, if the old stand is not moved at all. Consequently no stores will be brought in until these young bees are old enough to take their flight, and go to work. In such cases, unless there is honey in the combs, they are liable to starve right in the height of clover or basswood bloom. The only way is to feed them until they get old enough; but a better way is to do your dividing in such a way that you will have at least a few working bees that will stay in the nucleus. See directions for dividing, in any of our text-books.

RELATIVE AMOUNT OF STORES CONSUMED IN OUT-DOOR AND CELLAR WINTERING.

On page 892, 1886, Dr. C. C. Miller asks, "Does cellaring lessen the vigor of bees?" Having experimented on that point, also as to the amount of stores saved, I give you my figures. Nov. 20, 1885, I put in the cellar 76 colonies and left 6 good strong ones on their summer stands in double-walled hives, with $\frac{3}{4}$ -inch dead-air space and 5 inches cut straw over the frames. I weighed all the same day. Apr. 20, 1886, I took the bees from the cellar, and weighed all again. To make the average a fair one, I took

the weight of 37 of the best colonies from the cellar against the 6 wintered out. The 37 in the cellar consumed 9½ lbs. each; and those out, 13 lbs. each. To sum up, cellaring increased their vigor, and in 5 months used 26 per cent less stores.

Albion, N. Y.

G. H. ASHBY.

CAN OLD MOLASSES-BARRELS BE USED FOR THE STORAGE OF HONEY?

How would it do to take syrup-barrels, say those such as we get 6 or 10 lbs. of syrup in, wash them out and put extracted honey in them? Would it injure the honey in any way? I don't intend to ship the honey in them, only I want something to answer the same as a tank. If they can not be got clean enough by washing with water at the bung-hole, I could knock one head out and then cover them with a cloth and lid. If they won't injure the honey it would be a big saving, as I can save the barrels when I empty them of syrup for the honey season. They do not cost me any thing, and they will hold about 600 lbs. apiece, and 10 of them will hold the amount that I would want a tank to hold. I am told that such a tank would cost me 20 or 30 dollars. I have so far been keeping my honey in the largest stone jars, also in large tin cans; but they are too expensive. If you have had no experience in putting honey in such barrels, or can't answer it to a certainty, perhaps some of the readers of GLEANINGS can. C. M. HICKS.

Fairview, Md., Feb. 14, 1887.

Friend H., there is no way to make molasses-barrels, or wooden barrels of any kind, keep honey as nicely as tin cans or stone crocks, unless they are coated with wax or paraffine, or something similar. You may wash the wood ever so clean, and dry it ever so dry, and when it becomes soaked with honey the wood will give the honey more or less of a woody flavor; and where the barrels have been once used for molasses the honey will be sure to have a molasses taint. I would not undertake to use them without waxing them, according to the directions in the A B C book. You might try one or two, to see if you do not find it as I state.

HONEY MADE BY FEEDING SUGAR.

I inclose an advertisement which I cut from one of our local papers. You will notice what a pretty insinuation it contains regarding our "Northern" honey. Perhaps some of the readers of GLEANINGS can tell us a little something of this extensive or celebrated bee-farm. CHARLES H. SMITH.

Pittsfield, Mass., April 30, 1887.

NOT ONE FLAKE OF SNOW.

And over 300 different varieties of flowers in bloom all winter long, at

DR. D. R. FOX'S CELEBRATED APIARY, OR BEE-FARM (of 400 hives), Jesuits' Bend, La. His Northern agent has just received 1000 lbs. of this pure extracted orange-blossom honey, fresh from the apiary. This honey is as fine flavored as any ever introduced into Massachusetts, and is warranted strictly pure it being gathered from nothing but flowers and has a much nicer flavor than Northern honey made by feeding the bees on sugar. Samples of this honey can be found in all the leading grocery stores in Pittsfield and vicinity.

Thanks, friend S. To be sure, we want to know all about Dr. D. R. Fox, of Jesuits' Bend, La. But is it not possible, and altogether likely, that it is the advertiser in your town who is responsible for these slurs, and that friend Fox knows nothing of it? In any case, however, he should be notified that he is reflecting on good and honest men. Perhaps some of our readers can tell

us more about it. If they don't have one flake of snow, they do sometimes have serious frosts, even in sunny Louisiana.

CUCUMBER PEELINGS FOR DRIVING OFF COCK-ROACHES.

D. C. McLeod, of Plena, Ill., asks for a remedy for cockroaches. Years ago it was asserted by some bee-keepers that the roaches do no harm. As they were then numerous in some of our hives, I watched them and found their habits really predatory; but it seemed impossible to exterminate them. When pursued they will dart from comb to comb and from cell to cell with astonishing rapidity, and never seem to cease incubating, winter or summer. At that time I could find no remedy, but have since been assured, by several, that the thin peelings of green cucumbers placed on the frames will utterly destroy them. You might try it, friend McL., on a small scale at first, to find if it injures the bees, and be sure to report progress to GLEANINGS.

W. A. J. BEAUCHAMP.

Orange, Tex., Apr. 23, 1887.

Friend B., I can not have very much faith in any remedy that does not seem to have either reason or sense about it, and I can't see why cockroaches would not eat cucumbers as well as their natural food. If the cucumbers were to have some Paris green sprinkled over them, or something of that sort, there would then be something rational in the proceeding; but as this Paris green might kill the bees too, I presume that will not do.

A NOVEL WAY OF GETTING A GOOD PRICE FOR HONEY.

I went into winter quarters with 72 colonies, lost 5. Last year I raised 1300 lbs. of extracted honey, and sold it for 8 cts. per lb., or 15 lbs. for one dollar. I raised 1500 lbs. comb honey, and sold it for 10 cts. per lb. You may think that too cheap, but I think it better than raising wheat at 75 cts. a bushel. I know it is. Now a little about the way I sell my honey. One year ago last winter I built me an ice-house and cooler, that I can keep eggs in. It cost complete about \$75.00. About the first of last Aug. I set my extractor on the spring wagon, filled it with honey, put on about 2 egg-crates and some comb honey, and away I went. Last year eggs were from 8 to 12 cts., while I peddled, and traded honey for eggs. I kept my eggs until Nov. 1, and sold them for 18½ cts. So you see I got a good price for my honey after all. I have room in my cooler for 3000 or 4000 dozen, and expect to fill it next fall in that way. I can sell about 2000 lbs. of honey in two weeks.

Sebewa, Mich.

H. M. BROWN.

Friend B., your suggestion is an excellent one. Your cold-storage room keeps the eggs in good order from August 1st to November 1st, after which little or no ice will be needed. If you succeeded in making such a cold-storage room for \$75.00, you did extremely well.

A PLEA FOR HIVES ON LEGS.

I have come to the conclusion that the best way to winter bees is *outdoors* on their summer stands. The past winter has been a pretty severe test for the "little fellows," at least in this neighborhood; and yet I never have wintered bees so successfully; in fact, I think they came through stronger, if any thing, than they were last fall! During summer

and winter my hives are set on a bench about 1½ feet from the ground, thus avoiding one great objection to bee-keeping—stooping. I can imagine some skeptical bee-keeper mentally asking me this question: "Would not the frogs and toads of the neighborhood become fat over the weary, heavily laden bees who missed the entrances to their hives?" My answer is, most emphatically, No; not if you do the way I do—scatter a little coal-ashes round about and under the hives; leave no hiding-places for the pesky "frogs and toads;" that's the idea. Try this, and I'll warrant that you will soon declare my "old, but good" plan the best. Where the hives are up so high it is a good plan to have a "windbreak" of some kind on the windward side of the apiary. Since I began wintering bees by this plan I have never lost a colony. W. M. BARNUM.

Angelica, N. Y., May 7, 1887.

WILL THE SCENT OF MICE ON SECTIONS OTHERWISE UNINJURED PREVENT BEES FROM OCCUPYING THEM?

I have quite a lot of old sections with foundation pulled out, ready for work, which were left over from last season; but as I had no honey-house, they were left where the mice could have access to them. They are not eaten by mice, nor in any way spoiled, only the scent, perhaps, where they have run over them. Now, I have been told by an old bee-keeper (how much he knows I can't tell), that bees will never work in sections or comb that mice have run over, and I do not want to lose the time in experimenting, to see if it is the case. Supposing you know, I thought I would find out at once. It will be a great loss to throw away all of my old sections with comb in them, but I suppose I had better do that than lose all. GLEANINGS has just come; and to say that I value its aid, and that it is one of my most welcome visitors, would be but expressing things mildly. I never expect to try to do without it while I keep bees. L. S. HAINES.

Greenville, Ill., May 3, 1887.

Your informant is entirely wrong, friend H. We have had hundreds of brood-combs eaten into more or less by the mice, and have put them into hives, and the bees took hold of them and filled up the holes as promptly as one could wish. They also have the knack of entirely removing the odor of mice; for when the combs were put into the hives, with the peculiar mouse smell (which is decidedly offensive to me), at the expiration of 24 hours, or about that time, the bees had cleaned out the combs and put in new pollen and honey. The offensive odor had disappeared entirely, and the combs smelled as sweet and clean as if they had always been in the bee-hive. I have never tried it for sections, because we never let the mice get into our comb honey; but I think the bees would fix the sections up all right, sweet and clean, if you thought best to set them at it.

SEALED COMBS OF NATURAL STORES VS. FEEDING GRANULATED SUGAR, ETC.

As we have wintered our bees successfully the past winter, we will present you with a few thoughts on that subject. During the first five years of bee-keeping we always set aside sealed combs of best clover honey, and scarcely knew a loss from wintering during that time. But so many of the leading bee-keepers declared in favor of

sugar stores, we became induced to feed largely of granulated sugar, but have lost a great many colonies so fed. Last season we returned to our old practice of saving sealed honey for stores; and the result is, we have lost but two out of fifty put in the cellar. Now, if all would practice this method instead of feeding sugar, how much honey would be taken from the city markets, thereby raising its value that much! On this matter of using honey in every way we can, and in developing the home market, depends the future price of honey; and to illustrate what I have said in another article I will give you a case in point. Mr. P.'s apiary of 80 colonies is five miles from us. Mr. H. lives within 20 rods of Mr. P.'s house and apiary. On one of our trips we saw Mr. H.; and by showing him some fine clover we took his order for \$5.80 worth. Mr. P. saw us deliver it, and hailed us with "How did you sell that man that honey? He has lived here for years, and I have never sold him a pound." I asked Mr. H. how this was, and he replied, "He never offered me any." Our books now show that we have sold Mr. H. three times since then, to the amount of \$18.00, but have never sold him a pound except when we offered it to him. Friends, do you see the point?

W. W. MCKEE, 50-48.

Dyersville, Iowa, May 13, 1885.

WHAT TO DO WHEN BEES GET A NOTION OF CLUSTERING ON TALL TREES.

My place is surrounded by tall oak-trees, and bees seem to have a mania for settling in the utmost tops of them when swarming, notwithstanding there are plenty of bushes all around whereon they might settle. This causes me to lose every year the greater part of my swarms. Now, I think I have read somewhere of some device to be placed in front of the hive when the swarm issues, by which the whole swarm can be caught up. If there is such a thing as a successful swarm-catcher in use, I wish you would advise me of it. State price, and say whether it can be sent by mail.

Atlees Sta., Va., May 9, 1887.

D. A. KUYK.

The Alley drone-trap, shown on page 5 of our catalogue, will cause the swarm to return shortly to the hive. If, then, the trap be detached from the entrance, and be placed among the flying bees, the latter will soon cluster about their queen in the trap, and the swarm may be hived. On page 258 of the A B C of Bee Culture an automatic device is described for catching swarms while in the air. I think, however, if the bees trouble you very much about clustering on the tops of tall trees I would clip the wings of all the queens. When a swarm issues, catch the clipped queen at the entrance, cage her, fasten her cage upon a pole (to which is attached a leafy bough), and hold her majesty among the flying bees before they cluster on the highest limb of the trees. In a word, friend K., I would do all I could to discourage the bees from clustering at all by the methods I have given.

HOW MUCH COMB HONEY TO THE GALLON?—MAKING BEES GO TO WORK.

I have sold 350 lbs. of comb honey, each customer asking me to bring a stone jar that will hold 50 lbs. What size of jar must I get to hold 50 lbs. in the comb? As you well know, the jar never holds what it is marked. What does honey weigh to the gallon when in the comb, well filled, capped over nicely?

How much to the gallon when extracted? I am trying to start in the bee-business, but my bees will not swarm, which bothers me very much, as bees are what I am after. I do not understand artificial swarming enough, or know enough of it to try. If my bees lie out on the outside of the hive, please tell me the cause of it, and what to do. J. O. BARNES.

Hickman, Fulton Co., Ky., May 16, 1887.

It is commonly considered that there is about 11 lbs. of extracted honey to the gallon. If the honey is very thick, 12 lbs. should be allowed. About an ounce of comb will hold a pound of honey, so that it would generally take about 12 lbs. of comb honey to make a gallon. A crock to hold 50 lbs. of honey in the comb should then have a capacity of something over 4 gallons. — In regard to preventing the bees from clustering outside, give them plenty of room inside. If bees act lazy, and disinclined to work, right in the height of the honey season, I would contract the brood-nest, but give them an abundance of room in the surplus apartment. I would refer you to the heading of "Comb Honey," in the A B C book, for further particulars about starting bees to work. You say that your bees will not swarm, and you seem to think this an undesirable trait. The veterans would be very glad indeed if they could prevent bees from swarming. If you have a strain of non-swarming bees, friend B., you do not need to be at all alarmed. What you want to do is to make them go to work.

THE NAMELESS BEE-DISEASE, AGAIN.

What is the matter with the bees? In some colonies the main force of the working class seems to be engaged from about 10 o'clock in the morning until about four in the afternoon in driving out and killing a small bee about a size between a house-fly and a common black bee. These bees are very black, except occasionally one with a little mark of Italian. This trouble is confined entirely to the hybrids, so far as I have discovered yet. One colony will soon be ruined. That one I have examined closely, and I find these little intruders hatching. There seems to be about every fiftieth bee that has just emerged from the cell of that stripe. I took 25 box hives last fall to transfer, and keep for five years. They were all blacks, and of a very low grade of hybrids, and this trouble seems to be confined alone to the hybrids. I transferred them this spring, and never discovered any thing wrong until about two weeks ago. D. B. BRYAN.

Desota, Ga.

Friend B., your bees have the disease described under the above head in our A B C book. It is a little discouraging, that no one has as yet been able to suggest the origin. The remedy is to give each hive thus affected a new queen from a healthy colony, then your bees will be all right again. I think it is only by accident that you find it among the hybrids only. It usually affects all kinds of bees alike. I have sometimes seen small black bees hatch out as a result of letting the brood get partially chilled while transferring. Your concluding sentence suggests that this may possibly be the trouble in your case, and not the nameless bee-disease, which it very much resembles, from your description.

FRIEND TERRY'S ADVICE IN REGARD TO POTATO-BEETLES—SEE P. 408.

You see you are ahead of every one else, and have got to take all the beetles from all the neighborhood. I think you will find picking an endless job. I once planted very early and got into about the same fix. I had to use poison. We delayed planting a little this year, partly because we did not want to get ahead of our neighbors and take all their beetles. If all potatoes come up at once, we get only our share. I think you will find poisoning the cheaper way.

T. B. TERRY.

Hudson, O., May 14, 1887.

But, friend T., we are ahead, and we did not use poison either, although it might have been easier. I took Blue Eyes, Cad-die, and Huber, and one of the neighbor's children, down into the potato-patch; and while the children took one row apiece I took two rows, Huber carrying the tin cup for me to drop the bugs in. We went through the whole patch in about an hour and a half. I paid the children 5 cts. an hour, or 5 cts. a hundred for the beetles, as they might choose. Blue Eyes and her schoolmate got 200 during the hour. I did not count mine, but there was a big lot, I tell you. The next day one of our hands followed them up again, getting every bug, and picking every leaf that had eggs on it; and now the patch is pretty well cleared. It cost some money; but if it is as you state it, haven't I benefited the neighborhood by making such thorough work of the first crop of bugs? I know you get less bugs; but while you get 40 cts. a bushel for your potatoes, I get 40 cts. a peck or more for mine.—It is now May 20, and those potatoes are the greater part of them, budded ready to blossom, and I tell you they are handsome.

BEES CRAZY FOR WHISKY.

Do bees need whisky? As our well water is so much impregnated with minerals as to render it unfit for domestic use, I have to haul water from a spring about one-half mile distant. As my old barrel was almost dilapidated, I purchased one of a saloon-keeper (the only thing which I think is worth buying of a saloon-keeper). As the barrel for some time retained a sufficient quantity of whisky to impregnate the water with its offensive taste and smell, the bees seemed almost crazy after it. As long as they could gain access to the whisky-water they would not notice pure water, though it was placed all around them. I have heard of box-hive bee-keepers putting whisky in hives to keep swarms from absconding when hived, but I do not know whether whisky is any benefit to bees or not. I abhor it too much to try it for any thing. I never drank more than a quart in my life.

QUEEN-CELLS NOT HATCHING.

Can any one tell me why queen-cells will not hatch? I have had no less than 40 fine cells reared under the swarming impulse, and have had only one cell hatch. I had a great many cells last season that failed to hatch. I do not know the cause. The queen larva begins to dry up or decay before it comes to maturity. There is generally a great quantity of royal jelly in the bottom of the cells. Not much surplus honey yet, but bees are unusually strong at this date. It is getting too dry for bees to do much. We have had only one shower in 53

days. I never saw it so dry here at this season of year since I have been here, about 20 years. I have not seen many reports from Texas in two seasons. What is the matter? Are bee-keepers too busy in gathering and selling their honey, and counting their money, to write, or are they all in Blasted Hopes?

G. W. BEARD.

Milano, Texas, May 2, 1887.

Friend B., I am inclined to think the trouble with your queen-cells is only a transient one. We have sometimes had a lot of cells that seemed to act as you state; but they hatched out all right soon after, and you have probably had the same experience by this time.—We are very sorry to hear that the dry weather is commencing again this season in Texas.

NOTES AND QUERIES.

A HIBERNATING BUMBLE-BEE.

Q N p. 302 friend Doolittle asks where and in what state bumble-bees pass the winter. While digging a hole in the ground, about the 1st of April, 1879, when at a depth of 18 inches I threw out a bumble-bee which soon came to life. There was nothing, apparently, for her to eat, so with friend Clarke I say it must have been hibernation.

F. D. CULVER.

Quincy, Mich., May 11, 1887.

[To be sure, it was hibernation, friend C., and the real genuine hibernation too; but if you will bury up some honey-bees—queens, drones, and workers—and have them come to life in the same way, we will pay you \$100 cash. You must, however, bury them on our premises, and dig them out in our presence.]

WHAT TO DO WITH A SWARM THAT HAS REDUCED ITSELF.

Please tell me what to do when a colony of bees is about to go to nothing, after swarming. It has swarmed three times this year—April 6th, 12th, and 14th.

J. B. FOLLETT.

Divine, Tenn., May 7, 1887.

[You have nothing to do, friend F., but to see that they have a queen. Don't you need the A B C book?]

CARNIOLANS VERSUS ITALIANS.

I wish to learn something about the Carniolans and albino bees. What points of superiority are claimed for them over the Italians? Do you consider them as good or better than the Italians?

Trempeleau, Wis.

W. M. ALLEN.

[We did not consider the Carniolans, after testing one colony one season, as good as the Italians—see p. 551 for 1886. However, some of our good friends do not agree with us.]

WAS IT FOUL BROOD?

I had every symptom of foul brood, such as has been described in your journal; but I stopped it before it advanced to a virulent form, by simply removing the queen and introducing a young one. In about 17 days after, the young queen had all dead brood removed, and not one of the cappings of brood was perforated. All looked healthy and clean.

GEORGE STRANGWAYS.

Elora, Ont., Canada.

[Some of our foreign friends claim that the removal of the queen will sometimes cure foul brood. But we feel pretty sure it would not have cured ours.]

turns the edges of the burlap up all round, and makes it tight all round. I then fill the crate full of chaff, and put on the $\frac{1}{2}$ -story cover, and all is done. I did not look at my bees until May 2d. I found them all right. Queens were all alive, combs bright, and lots of brood. I find the crates *better* than any cushion, as I can lift off the cover any time without disturbing the bees. J. EASTMAN.

Fallsington, Bucks Co., Pa., May 9, 1887.

REPORTS DISCOURAGING.

WINTER LOSS.

YOU ask for "reports discouraging." I went into winter with 18 colonies, all in Simplicity chaff hives. I now have 11 left—2 good colonies, the rest very weak. The best colony is Carniolan, a daughter from an imported queen from Frank Benton. Why they dwindled down this spring I can not explain. I lost some in the latter part of February, as the first two weeks of February was warm. The bees began to raise brood very fast, using all the honey in brood-nest, then there came two weeks of steady cold weather, and the bees starved with plenty of honey just out of their reach. The others dwindled away too quick, with brood and honey, but no old bees to nurse them.

SAMUEL HEATH.

Rimer, Armstrong Co., Pa., May 7, 1887.

UNFAVORABLE TO MRS. COTTON.

I am trying as hard as I can to make a success in keeping bees. I have tried twice, and have failed under the way Mrs. Lizzie Cotton manages bees, and I have also lost money by her by following her plans. I am now managing bees under your plans, and things are looking more favorable. I use your hives, and am a reader of the A B C book.

S. Woodbury, Vt., Apr. 13, 1887. W. F. ANGELL.

OTHER WINTER LOSSES.

I see that you want more reports discouraging. If all who have had bad luck in this part of the State would send in their reports it would fill GLEANINGS half full. Last season was wet and cold here; but little clover honey, considerable milkweed honey. Some have spoken of it as beautiful golden honey. I consider it the poorest honey I ever saw, and to that and pollen I attribute the great loss the past winter. I don't think that the winter was severe. Louse nectar, as spoken of by Geo. Wright, I know nothing about. My bees gathered but little if any thing late in the fall. At the close of the swarming season I had 34 swarms. I took about 600 lbs. of comb honey, most of it the miserable stuff spoken of. I use Vandervort's chaff hive. The 34 swarms were well packed in chaff; and with what honey they had in the brood-frames there was enough and to spare. The poor quality of the honey, and too much pollen (not the winter), reduced them to 15, and then from rather weak to very weak. I do not think the cellar is made in which they would have wintered on such stores.

S. B. SAFFORD.

Amasa, Pa., May 7, 1887.

IS IT FOUL BROOD?

I am not dead myself, but my Italian bees are dead—all died last summer with foul brood. It's the fourth attempt I have made to get a start with Ital-

ians. I can not account for it. None of the native bees had it, and I did not know what foul brood was till I got some Italian bees. I had thought I would write you about it ere this, but neglected to do so. I have 20 hives in good condition. J. J. KEITH.

Louisville, Ga., Feb. 25, 1887.

I can scarcely conceive how your Italians could have foul brood, and not your black bees. It is commonly considered that the disease is no respecter of persons—at least a bee personage. If it is a fact that you have foul brood, I should suppose that you had just purchased your Italians of some one who already had the disease in his apiary, and when the Italians were shipped you they brought the disease with them. One thing, however, is certain: If you have the real virulent foul brood it will attack the brood of black bees just as quickly as it will the brood of Italian bees. If you do not think so, try it once. If, upon trial, it does not have any effect upon the black bees, then you certainly have not foul brood.

BLASTED HOPES.

LOCALITY OVERSTOCKED, AND NO MARKET FOR HONEY.

I HAVE wintered 136 colonies of bees out of 162. Those lost were nearly all nuclei. Bees have wintered well here. This locality is overstocked with bees. I believe there are 2000 colonies within six miles of this place. But the worst part is, a good friend has purchased property here and located an apiary of nearly 100 colonies just eight rods from my apiary. Last season our bees when swarming would very often get together and cluster together. Sometimes we would not see them swarm, and find them after they had clustered; then we could not tell whose they were, but we are good friends all the same.

There is no sale for honey here. Markets are overstocked. One of our merchants told me a few days ago that they had about 1000 lbs. of honey, for which they would take 6 cts. per lb. They paid 10 cts. The outlook is gloomy. I should like to sell out. I am discouraged. Put me in Blasted Hopes. Nappanee, Ind. I. R. GOOD.

Why, friend G., I do not believe the matter is so very bad, after all; and as you have generally done pretty well with your bees I don't believe I would think of trying some other calling. Other industries have their times of depression as well as ours.

75 PER CENT OF THE BEES DEAD.

As I am a young subscriber to GLEANINGS, and see there "Reports Encouraging," I must join the "Blasted Hopes" column. Schoharie County is an excellent place for bees in summer. Last season was very poor, and the past winter memorable for losses. Perhaps 75 per cent of the bees are dead. I had 15 last fall, and shall have but 6 left. I know of one old veteran in the business, who, out of about 80 colonies, lost all but four, which he sold, including his old hives, for \$8.00. A very few may not have lost more than a third. A man told me that he had 14, and lost every one.

J. VAN WAGENEN, JR.

Lawyersville, N. Y., May 7, 1887.

MYSELF AND MY NEIGHBORS.

They that turn many to righteousness shall shine as the stars for ever and ever.—DAN. 12:3.

OF course, you have noticed, dear reader, how bright and happy you feel after having encouraged some fellow-being in the ways of righteousness; and I suppose you know, too, how dismal and dull one feels when he has hesitated or neglected an opportunity of speaking a word for righteousness. Well, when I left those boys in that hotel in Michigan and went into another room without saying a word to them, I had just that sort of feeling—I felt blue and dull; I was in a sort of spiritual darkness. Even the precious promises of the Bible seemed to be dim and obscure. There was a kind of feeling that wickedness was going to keep on, and, may be, ultimately prevail, and that there was not very much use in trying to do any thing about it any way. Well, did you ever feel that such thoughts are wicked? I know they are wicked—they are Satan's promptings. But whenever you sit still and let things go on from bad to worse, without making a movement or opening your mouth by way of protest, you will be sure to feel this spiritual darkness; and doubt and want of faith in regard to God's promises, and dim perceptions of spiritual truths, seem to be the consequence. I made up my mind that I would do better when another such opportunity should offer.

I reached Owosso promptly; but Prof. Cook was watching at one depot, and I came in at another, as I have explained to you. As soon as I learned that the two depots were one-fourth mile or more distant, I hastened to the one where I was expected. A man informed me that Prof. Cook had just been there, and that he had heard him say that he was looking for somebody who did not come. I inquired in the town for him, but they had not seen him, and finally I ascertained he had gone to his farm.

"Well," said I to myself, "if my plans are frustrated, what plans has the Master for me, under the circumstances?" The only thing for me to do was to go to a livery stable and get somebody to take me out to the farm, about four miles.

Did you ever notice, dear reader, how many people there are in towns and villages sitting around idly? In cold weather they sit down by a stove, and neither move nor speak for hours. I have often wondered how it is possible that people can sit still, doing absolutely nothing at all, when this bright world is open before us, and when such grand and wonderful opportunities spread themselves out before every human being. Why, if I were out of a job I could think of a hundred different things that I should delight in doing at once. I can remember a few times in childhood when I had nothing to do; but since my teens the hours have been very scarce when there was not something I wanted to do very much indeed, just as soon as I could get a spare moment.

Let me digress just enough to tell you

what it is I should like to do just now. There are a great many things that I mean to do this afternoon; but there is one thing that I have for several days been proposing I would do as soon as it gets dark. It is this: About a week ago, in crossing a plank near the carp-pond I heard a sort of ticking or snapping. Perhaps you would not have thought any thing about it, but passed right along. Now, I have learned by experience that dear old Dame Nature has wonderful secrets to unfold; and oftentimes the only hint she gives you is some unusual noise or strange occurrence. I should have supposed the noise was the work of insects; but insects are not very plentiful just yet, and it was down on the side of a bank near the water. Even though somebody was waiting for me, I climbed down; and by listening at different points I decided pretty nearly where the faint sound came from. Sure enough, at the side of the bank where the water trickled out from the carp-pond there was a sort of bubbling in the mud. The bubbles came with great regularity, and their bursting made the ticking or snapping sound. It was gas of some kind, issuing from the earth. It did not take me long to build air-castles in the way of lighting our manufactory and running our machinery by means of natural gas found on our own premises. I am sorry to say, however, that, when tested by a lighted match, when I had more leisure, it did not prove to be the illuminating gas that has made such a stir in different parts of Ohio. Nevertheless, I enjoyed my discovery, and I am not through with it yet. Now, then, how *can* people sit still when there is so much to be seen, so much to be discovered, so much to be studied out, so many wonderful things of interest all round about us? When I started for the livery stable I wondered if livery stables were pretty much the same thing the world over. I am afraid they are the same, dear reader. By the stove sat a boy, and he was a fair type of many of the boys in America. He was not doing a thing while he sat by the stove. I am not sure that he even looked up when I came in. In answer to my inquiries, he replied briefly. A few minutes later the proprietor called this boy by name and directed him to drive me to Prof. Cook's farm. Although it was near the first of April, it was a wintry day, except that every thing was bright with a flood of sunshine. For some time we rode together in silence. What should a boy in his teens have to do any way, with a man toward fifty? What ideas could they be expected to have in common? Unless I made an effort our whole journey would be one of silence on both sides. Satan whispered, "This boy has no intelligence, and he probably is not even thinking at all. There is not any use in wasting your breath in trying to wake him up out of his characteristic stolid indifference to the world in general." Another voice said, "Christ died for him, whoever he is. You behaved in a cowardly way but a few hours ago, and you resolved to do better next time. Now, then, old fellow, if you really do love God and humanity, show your faith by your works."

I spoke to him in regard to different things; but he replied by yes or no, without even looking at me. When I was in the jewelry business I always prided myself on my ability to sell goods. If I wanted to sell a man a watch, the first thing was, in ordinary cases, to get acquainted with him and make myself agreeable. When people became acquainted with me they usually were willing to trust my statements. What I said would have but little weight until I had made myself agreeable and pleasant. It is a trade to sell watches; it is a trade to sell goods of any kind, and an expert salesman usually commands a large salary. It occurred to me that I should have to use much the same energy in getting acquainted with this boy that I used to in selling goods. Finally I turned to him, determined to see whether I could break the shell of indifference or bashfulness (was it the latter?). I asked him his name. He replied, briefly, "Henry." Then I turned myself toward him and commenced something like this:

"Henry, we are going to ride perhaps an hour together, and I want to get acquainted with you. I wanted to know your first name because I want to talk with you as if we had been friends a long while; and I can't talk with anybody easily unless I call them by their familiar name as other people do. Perhaps you would like to know why I wanted to get acquainted with you at all. Well, Henry, it is because I love all the boys. I want to see them grow up to be good men; and, most of all, I want them to become Christians."

At this he looked me full in the face in some astonishment; but when he fully understood that it was in regard to his soul's salvation that I intended to speak, you should have seen the transformation that came into that boy's face. I had not seen him smile before at all; but now a faint smile lighted up his boyish features. But that smile was worth every thing to me. There was in it a look of innocent wonder such as a baby shows in its first smile of recognition. Now he was willing to talk. I asked him about his father and mother. The mother was a Christian, and it was the old, old story. He had been in the habit of going to Sunday-school; but for a year past, or more, he had decided he was getting to be too old. I wonder if Henry will forgive me if I tell how he passed his Sundays. With boyish frankness he admitted he had learned to swear just a little; he had also commenced to smoke cigars just a little; and he knew how to play cards just a little. He knew about other things too, just a little, that I need not tell of here. I presume his mother did not suspect what he frankly confessed to me. I asked him what he thought about the Bible and Jesus, and a future after this life is past. He was not thinking very much about them nowadays; in fact, these other things had driven them out of his head. He had heard men speak sneeringly about such things, and he was fast learning to do so himself. Well, I worked hard during that hour.* I plead with Hen-

ry; I held up before him the future if he kept on in the downward road; then I told him, on the other hand, of God's love and of his promises. I told him of our little band of Christian workers in Medina—of our prayer-meetings; I told him of the boys I had met in jail, and I spoke of the habits that had brought them to prison. He was deeply interested in all this, and I was surprised that I could interest a boy in his teens if I tried hard. He asked me many questions, and I told him as much as I could about the great world, with its opportunities that lie before him. When we were ready to separate I felt that Henry was my friend, and I *knew* that I was his friend. I told him I might never see him again, but that I should think of him often and pray for him.

"Henry, does your employer give you any rules in regard to money you receive from strangers? What I mean, is it yours, independent of your wages, even if you tell him about it?"

He replied that it was.

"Well, Henry, here is twenty-five cents, which you are to use just as you please, only use it for some good purpose. Buy something with it to remember me by, if you choose; and please don't forget the promise you have given me, to go back to Sunday-school; to stick closely to your mother, and follow her advice. Try hard to talk to her as you have talked to me here to-day. Don't keep back any thing; and, above all things, my boy, don't forget Jesus who died for us all. Don't ever again let his dear name pass your lips in vain. Don't go with bad boys; don't stay where you hear bad talk; and may I hope to hear some time that you are not only a good man, but a good *Christian* man."

Now, dear reader, how do you suppose I felt as I took his childish hand in mine and bade him good-by? I hardly need tell you that the darkness and clouds of the morning were gone. My faith was as bright and clear in the Savior's love and the Savior's promise as is the clear blue sky after a summer shower. And I was happy too. A peace filled my heart that comes from no other service or work. It was the peace that Christ Jesus and he only can give. Why, the memory of that forenoon's work was as a sweet perfume pervading my whole being, even when I was thinking of something else. Over and over again I would forget myself and be wondering what it was I was so glad and happy about. It made my whole visit pleasant; it made me love everybody—even the sinful and wicked. And do you not see now that it was nothing more nor less than the fulfillment of the little text at the head of this talk? You may verify it in your own experience, for you probably have just such neighbors right around you. May God help us to remember the boys! May he help us to remember, too,

this case I was working unselfishly. In fact, I had no thought of any pay in any shape whatever. It was simply for *Christ's* sake; and without being aware of it I was standing where the promise reached me when Jesus said, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

*Yes, I had worked as hard and earnestly as I used to work in selling a high-priced watch; but in

that a little earnest work may be the means of stopping some of these little ones from that which may end in shame and disgrace and ruin.

They that turn many to righteousness shall shine as the stars for ever and ever.—DAN. 12:3.

TOBACCO COLUMN.

SOMETHING MORE FROM FRIEND STOKELY.

OUR friends will recognize friend S. as the bee-keeper who had lost his wife (see Our Homes for March 15).

Friend Root:—I have just finished reading the Tobacco Column in GLEANINGS for April 15, and the idea of giving you my experience occurred to me. Some time in the autumn of 1843, at which time I was 13 years of age, I commenced upon a very small chew; but, I am proud to say, I never finished it. Before we returned any of our jewels to the Master, we numbered nine—the youngest member being now 10 years old, and that little chew covers the extent of our indulgence in the habit, and a few dimes' worth given to a good old mother, is about the extent of our expenditures for tobacco.

Your zeal for the elevation of the human family is laudable in the highest degree, and we trust that it will find appreciative hearts. G. C. STOKELY.

Arnoldville, Ind. Ter., Apr. 27, 1887.

I am very glad to hear of this, friend S., and we are all glad to know that you are really among those who are seeking the kingdom of God and his righteousness. And so there are several of you to mourn the loss you told us about before. We are very glad indeed to find you are on the right side of the tobacco question. If the youngest is 10, it is hardly likely that any of you will take to tobacco in the future.

I have quit the use of tobacco; and if I begin again, I will pay the price of the smoker.

Planter, Ga., Apr. 10, 1887. T. M. O'KELLY.

I promise to quit the use of tobacco in any form; and, if I resume its use, I will pay for the smoker sent me.

E. J. GOULD.

Lawrence, Kan., April 26, 1887.

My brother has quit the use of tobacco; and if you think he is entitled to a smoker, send one to him, and if he commences to use tobacco again I will pay for the smoker.

S. E. SIMENS.

Upland, Grant Co., Ind., Apr. 26, 1887.

John Trego, the man you sent a smoker to for quitting tobacco, requests you to send one to James Wells, at Filley, Cedar Co., Mo. Mr. Wells promises to quit tobacco or pay for the smoker.

Virgil City, Mo., Apr. 21, 1887. E. LISTON.

A friend of mine wants to quit using tobacco, and he says he will pledge himself to quit if you will send him a smoker. He will pay you for it if he does not quit. His name is T. K. Roberts.

Boyce, La., Apr. 12, 1887. T. G. MORGAN.

Will you please send a smoker to Theodore Freeman, Tioga, Pa., who has given up using tobacco, and promises never to use it again? Should he break his pledge I will remit for smoker.

MRS. W. E. NICELY.

Mitchell Creek, Pa., May 1, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

FOUL BROOD—OUR OLD FRIEND THE ENEMY, AGAIN.

I AM sorry to be obliged to give a sub-head like the above. I had determined that I would not again bring up this disagreeable subject of foul brood; but in justice to our readers and patrons, I must tell the facts. In the last issue, in this department I reported no foul brood, and I believe I rather conveyed the idea that we thought we had entirely eradicated the disease; but just about the time that GLEANINGS had reached our readers, bringing this intelligence, foul brood broke out. I was just passing down the central apiary when one of our young men who was examining a colony called out, "What do you call this?" I nervously examined the comb, and with a toothpick I poked into two or three cells, which my eyes told me too plainly contained foul brood. On drawing out the toothpick, the same ropy, sticky, stringy matter adhered to the end. The disease, however, was then in only its incipient stage, and probably a day or so before would not have been apparent. I now said to the boys, "We shall be almost sure to find other cases adjacent to this one." A little later in the day, when flying bees had dispersed, I threw off my coat, and, with smoker in hand, proceeded to investigate. I singled out first the hive that had its entrance opening in the same direction, and in other respects similarly situated. On opening it I was not surprised to find that it was diseased. I shall again refer to this point further on. We soon discovered two or three more diseased colonies, and, in the course of a week, twelve or fifteen cases of veritable foul brood were found.

Now, the question that will naturally arise in the minds of many of you will be, How was it, that, for six weeks, with no foul brood, the disease should break out so suddenly, and almost simultaneously? The answer is this: I had previously instructed the boys to allow the colonies to reduce their stores almost to the starvation point; that is, I desired to have the bees consume all the stores left over from last season. If said stores contained any diseased matter, they would soon reveal their true condition. It seems that the bees at the time foul brood broke out had reached the very bottom of the cells, where, evidently, some of the honey was still diseased from last year, but which, during the six weeks of no foul brood, had been covered up by the few stores the bees were gathering from fruit-bloom and other sources.

I know that some of the readers will condemn us for being so sure that we had cured foul brood; but it seemed to us then that six weeks of healthy brood, and the colonies nearly on the point of starvation, and still no evidences of foul brood, we had really conquered our old enemy. We are reminded strongly of this fact: That, during the height of brood-rearing, foul brood, where an apiary has been diseased previously, may

disappear for a period of as long as six weeks, possibly longer, and yet reappear. We are reminded, also, that foul brood is a subtle enemy. He will hide himself away, and then when you have just drawn a breath of relief, thinking that you have conquered him, he will rise up with renewed strength, and let you know, if you never did before, that he is almost one of the invincibles.

In last issue, we had decided to fill orders from the home apiary. We had not, however, sent out more than two or three before the condition of the apiary was discovered, so that the friends who may have purchased of us do not, I think, need to be alarmed; for, as we have repeatedly stated, foul brood can not be communicated by shipping bees and queens by the pound.

As soon as we became aware that foul brood had reappeared, we immediately decided to reinforce the Swamp Apiary. On the supposition that we had cured foul brood in the home apiary, the former had been abandoned. Word was immediately sent to friends Rice and Shook, located some twelve miles south of us, to bring us a couple more loads of bees, in order that we might continue filling orders as heretofore, but with bees which *we knew to be entirely free* from any traces of the disease. In response to the order sent, early yesterday morning (May 24th) they arrived with the bees. We then drove over to the Swamp Apiary, and in the course of the day you might have seen 57 colonies scattered here and there among the blackberry-bushes and young beech-trees. In the evening of the same day, orders for bees and queens then on our books were filled, without causing a delay of more than one or two days.

To me, the location of this new apiary is rather pretty. There is quite a growth of underbrush, long grasses, and weeds. The wild and uncared-for appearance of the place is peculiarly attractive; and the shrubbery, together with small trees, will give the bees sufficient landmarks by which they can easily locate their own entrances.

In this connection I wish to make mention of the chief factor which I think spread foul brood in the home apiary. In the latter place, the readers of the ABC book, and those who have seen the picture of the apiary, will remember that the hives are arranged with geometrical accuracy. The grapevine trellises and general surroundings of each hive are almost identical in appearance—so much so that the bees of the several hives are very frequently confounded as to their real entrance. On almost any bright day in early spring, when the bees are out, we find scores and scores of them buzzing around at the back side of some hive, having mistaken it for their own hive. This general symmetry in the arrangement of hives causes the bees to become mixed, to a very great extent. Now, then, if one colony is diseased, almost all the neighboring hives will be pretty sure to have the disease sooner or later, because the young bees from the diseased colony, not being able to distinctly locate their own hive, will enter other hives, the entrances to which have almost

the same appearance. In this way the infection is carried. In the Swamp Apiary we decided to abandon all rules of symmetry—make the entrances and the general surroundings of each hive peculiar to itself. We did not do this because we feared foul brood in the Swamp Apiary, but because young queens, if the entrances of different hives are alike, are quite apt to get into the wrong hive and so be killed. I am well aware, that an apiary which has a symmetrical appearance looks nicer, and has a more pleasing look to the eye, but I have felt confident for some time that we ought to have sufficient distinguishing features about each hive and its location, so that the bees will not be continually getting into the wrong hive, and so waste valuable time, in the height of the honey-flow, in trying to determine where they belong.

THE BINGHAM SMOKER.

Some three or four months ago, at my request Mr. T. F. Bingham sent me one of his "Doctor" smokers. At first I did not like it. I followed the directions which accompanied the smoker—that is, to use sound hard wood for fuel. For some reason or other I could not make it work. That kind of fuel was hard to light; and when I succeeded it had a fashion of going out. I next tried sawdust fuel. The latter material was so combustible that the Bingham sent a tongue of flame out of the nozzle for a distance of three or four inches, along with a goodly number of sparks. Some of the sparks lodged in my clothing, and a few in my face until I actually became afraid of the thing. After several unsuccessful attempts I laid the smoker on a shelf in the house apiary, and it remained there for a couple of months. One day I concluded I would give the thing a most thorough trial. I knew that good bee-keepers had used it and liked it, and so instead of using hard wood I determined to try Dr. Miller's plan; *i. e.*, fill the fire-box with planer shavings, and stuffing the nozzle with green grass. As the Bingham seemed inclined to send out a volley of sparks when shavings or other light fuel was used, I thought that the idea of stuffing the nozzle with green grass seemed reasonable. I accordingly grabbed up a handful of Excelsior, mixed with fine sawdust, lighted it, and shoved it down the barrel. I then crammed in more Excelsior, packing it down tightly. Into the nozzle of the smoker I crammed a handful of green grass, and adjusted it on to the barrel. The results were highly satisfactory. I used the smoker from three o'clock until seven in the evening while I watched for foul brood. I had a good volume of smoke, but not a single spark. I have since used it, and will now say, even at the risk of hurting our trade in the Clark smoker, that the Bingham is a first-class implement. The valve works quickly, and a slight compression of the bellows will send a very gentle whiff of smoke. It is always the same, as there is nothing in its construction to become clogged up with soot. But without the green grass in the nozzle, I certainly could not tolerate the sparks. The grass not only arrests sparks, but prevents too great a draft for the shav-

ings, which otherwise would be ignited into flame, and shoot out at the nozzle. Friend Bingham, why don't you recommend shavings and green grass, instead of hard wood? But possibly I haven't caught the knack of making it burn. May I venture to suggest, that *you* haven't learned how to use shavings and grass?

In favor of the Clark, I must say that it will send a stream of smoke to a greater distance than the Bingham. It will fill easier, and light more quickly; but it has not the lasting qualities of the Bingham. At present we are working to remedy some of the defects in the Clark.

GLEANINGS IN BEE CULTURE.

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A. I. ROOT,
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TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 1, 1887.

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5: 20.

GLEANINGS now has 7314 subscribers—more than it ever had at any other time in its history.

THE "KENTON BEE-HIVE."

THE above is the title of a monthly bee-journal, just started at Kenton, O. The editors are Smith & Smith, whose names our readers will doubtless remember having seen very frequently in our advertising columns. The first number has 12 pages, and can be obtained by corresponding with the editors, Kenton, O. Price 50 cents a year.

THE NEW JAPANESE BUCKWHEAT.

THE demand for this new buckwheat has been enormous; but by repeated purchases we are still able to furnish it at prices given in our issue for April 1; viz., \$1.75 per peck; half-peck, \$1.00; 1 lb., 25 cts.; $\frac{1}{4}$ lb., 8 cts. If wanted by mail, add 5 cts. per $\frac{1}{4}$ lb., or 18 cts. per whole pound, bag and postage. We mention it again, because it is now approaching the time to sow it, in most localities. We think no bee-keeper can afford to neglect giving it a test. A quarter-pound package will give you quite a start for next year, if you don't care to go into it any further. For a picture and full description of the plant, see page 167, March 1, 1887.

FULL COLONIES AND NUCLEI OF ITALIAN BEES AT GREATLY REDUCED PRICES—A SPECIAL LOT.

FOR certain reasons, it is desirable to dispose of at once 40 colonies of Italian bees and about 100 nuclei in the possession of Mr. G. A. Beach, of Quitman, Nodaway Co., Mo. These bees are in Simplicity frames, are guaranteed to be good Italians, and there has never been any foul brood within 200 miles. Until they are closed out, we will make the very low price of \$5.00 for a full colony, or \$2.00 for a

two-frame nucleus, or 50 cents less with hybrid queens. Further particulars can be obtained by writing to Friend Beach, as above. Remember, these prices are given only on bees to be shipped from Missouri, and you must state at the time of ordering that you wish to take advantage of this offer. Full colonies are ready to be shipped at once, and nuclei any time after June 15. Send orders and money to us.

VARIOUSLY MARKED HYBRIDS.

A SUBSCRIBER sends us a cage of bees which he says are from an untested queen. Some of the bees are nicely marked Italians, and some of them are almost black, while others have two yellow bands. The queen, of course, proved to be hybrid. Our correspondent wished to know how this can be, as the bees in question are all from one queen. In private correspondence we have explained this several times; but for the benefit of beginners we will say it is not uncommon, when bees are hybrids, that variously marked bees will be found, all the way from pure Italians to pure blacks. We would refer our correspondent and others to the article on "Hybrids," page 123 of the ABC book, where the question is fully discussed.

COMPLICATED SURPLUS HONEY ARRANGEMENT.

EVERY few days some one sends us a surplus arrangement which he has invented, and about which he desires our opinion. In general, we can say they have been sent in by those who have had but little experience with bees, and as a rule they are altogether too complicated for practical use. One came to-day, marked on the side, "Patent applied for." We should say it would *cost* to produce honey on a large scale, with this sort of arrangement, fully what honey will sell for at the present quotations. We should remember that the idea nowadays is to construct surplus arrangements which will produce honey at a minimum cost. The simplest device that can be gotten up, consistent with the objects sought and habits of the bees, is the one destined to produce honey at the lowest possible cost. The surplus arrangement referred to above has separators, which we should say would cost two or three cents apiece to make. Then there are wedges, several sizes of sections, besides other complications, which would make the case altogether too expensive for the average honey-producer. The ideas sought after by the inventor are good, and his invention ingenious; but we hope our friends will try to remember that we don't want a surplus arrangement which can be adapted to every hive, invertible or non-invertible, contractible or non-contractible—in short, one which will do almost any thing any bee-keeper ever suggested. A patent medicine which will cure all diseases known under the sun is worthless; and I think we can say, for the same reason, that surplus comb-honey arrangements which will accomplish every thing ever dreamed of are likewise worthless. As a rule, our largest and most successful honey-producers are using very simple arrangements.

FOUL BROOD IN WINTER.

A CORRESPONDENT writes us that his bees died of foul brood during the last winter, and he is located in the Northern States. Of course, this would be impossible. Foul brood always disappears for the season at the approach of winter, or, at least, when bees cease rearing brood. Our correspondent

should remember that foul brood does not in any manner affect the *bees*, but it is wholly a disease of the *brood*. When brood-rearing ceases, of course there is nothing for the malady to work on. For the same reason, removing the queen removes the disease as soon as the brood is all hatched; and it can not commence again until more brood is started. The bees referred to above probably died from causes usually ascribed to wintering.

"OUR LITTLE NEIGHBORS."

We are pleased to inform our readers that the Rev. John Dooly, 395 Broome St., New York, has been giving a lecture, entitled as above. Friend D. has sent us an admission ticket, and on the back of it we find it reads as follows:

OUR LITTLE NEIGHBORS.

Who they are; the houses they live in; the way they live; what they gossip about; their love; their hatred; their riches—how they gain and lose them.

N. B.—Some of "our little neighbors" are invited to be present. If they do not come, THEIR EARS WILL BURN; if they come, they may make OUR EARS BURN.

Friend D. is an evangelist. He is and has been holding services nearly every day in the week, in the great metropolis of America, as above stated. He takes up the subject of bee-keeping simply as a recreation from his arduous duties. We sincerely hope that he may find in bees sufficient rest to help him in his glorious work.

"TRADE SECRETS."

THE above is the title of a new work just out, written by John Phin, of the Industrial Publication Co., 15 Day St., New York. It contains a large amount of valuable information that can not be readily found elsewhere. It gives not only formulae for manufacturing an immense variety of articles, but important and trustworthy hints. In the introduction there is information, full of interesting incidents, explaining the whys and wherefores. The book is arranged in the convenient form of an encyclopedia, and each recipe can be found in its alphabetical place. We will take a case in point. Under the head of "Microscopes" the author gives a very simple plan for making a simple lens, and one, too, that has considerable power. On page 67 the author says, in speaking of one of the little microscopes which he made, "We have one now before us by which we can easily see corpuscles, or globules, as they are sometimes called, of human blood, and we can readily see the difference between the blood of a man and that of a frog. We can also see clearly the construction of the *sting* of a bee and the eye of a fly." John Phin is well known as a skilled microscopist, and we feel sure that, when he makes the foregoing statements, he knows what he is talking about. These microscopes can be made for a very small amount of money, and we have no doubt that an enthusiast on the subject of microscopes could, with a small outlay, make just such a microscope as there described. Under the head of "Honey" we find various recipes for making the artificial product. The author very wisely says, along with the recipes he gives, that pure honey can now be produced so cheaply that it is almost impracticable to adulterate it to any large extent. We have no doubt that the work will be found valuable to many of our tradesmen, and to others who would like to know how some things are made. The price of the book is 60 cts., postpaid, and can be obtained of the publishers as above.

SPECIAL NOTICES.

6-INCH PELHAM MILL FOR SALE.

WE have on hand a new 6-inch Pelham mill that we took in exchange for one of our mills. I believe it does not have the latest improved frame, but it is in first-class condition, and does good work—that is, for a Pelham mill. We will sell it for \$8.00, although the retail price of one of that size is \$9.00. If necessary, we can send you a small sample of its work by mail.

A 15-INCH POWER DRILL FOR SALE.

THE work in our machine-shop has increased to such an extent that we have been obliged to purchase some new and expensive pieces of machinery. Among them is a new power-drill. We now offer for sale our old power drill which we have used for several years. It has a 15-inch swing, an automatic or hand feed, and may be run by power or by hand. It is just the thing for an ordinary blacksmith shop. It cost originally \$75.00; but as the price of iron-working machinery has come down considerably within a year or two past, we will offer this drill at the low price of \$15.00, boxed on the cars at Medina. Any of you who would have use for such a drill will find it is a rare opportunity. Let us hear from you at once.

CIRCULARS RECEIVED.

The following have sent us their price lists:

J. B. Hains, Bedford, Ohio; an advertising sheet of bee-supplies.

J. W. Clark, Clarksburg, Mo.; a 4-page circular of apiarian supplies.

F. W. Holmes, Coopersville, Mich.; a 10-page circular of Dunham and Vandervort foundation, with a few other supplies.

G. W. Bercaw & Bro., Fostoria, O.; a 16-page price list of rubber stamps, especially designed for bee-keepers.

SYRIAN, ITALIAN, AND ALBINO BEES *and* QUEENS.

Untested queen, 75c; tested, \$1.50; bees by the pound, 75c; hybrid queen, when we have them, 50c; frame of brood, 75c. Please don't send stamps.
11-12-13d N. E. COTTRELL, Fayette, O.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

QUEENS.

I have them, bred from a best selected queen of Root's importation, 90 cts. each; 6 for \$4.50. I can give all orders immediate attention, and ship by return mail. Send postal for dozen rates.

11tdb B. T. BLEASDALE,
983 Woodland Ave., Cleveland, Ohio.

ITALIAN QUEENS, Untested.....75 cts.
11tdb T. A. PEW, Middletown, Mo. Six for.....\$4.00

Italian Bees

Two-frame nuclei, both frames containing brood, with all adhering bees, and untested queen, from imported mother, \$2.25. Bees, per pound, \$1.00. Untested queen, \$1.00. Safe arrival and satisfaction guaranteed.

11d MRS. A. F. PROPER,
Portland, Jay Co., Ind.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfbd

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads. intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city.
20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free.
4tfdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange Barnes foot-power saws and bees, for steam-engine, honey, or beeswax.
7-12db C. W. & A. H. K. BLOOD, Littleton, Mass.

WANTED.—To exchange 15 Simplicity hives (2-story) half comb and half foundation, all in good condition. Make us an offer.
10-11d J. D. HALSTED, Rye, N. Y.

WYANDOTTE and Houdan eggs or birds in exchange for bee supplies; see adv't in another column. JAMES EVANS, Box 89, Schaghticoke, N. Y.
10tfdb

WANTED.—To exchange a second-hand Hall typewriter for extractor, Italian bees, or bee-keepers' supplies. E. P. WEBSTER, Gambier, O. 11d

WANTED.—To exchange three city building lots, 25 x 102, in the city of St. Andrews Bay, Florida, for Italian bees, comb foundation, or any kind of apianary supplies. Titles to property are good.
Address B. G. LUTTRELL,
Luttrell, De Kalb Co., Ala.

WANTED.—To exchange eight thoroughbred Newfoundland pups or eight Yorkshire pigs, for hives, sections, or foundation. Satisfaction guaranteed.
D. C. SULLIVAN,
11d Ridgeway, Orleans Co., N. Y.

WANTED.—To exchange English lop-ear rabbits, Guinea pigs, and water-spaniel dog pups for bees by the pound.
F. GROSSMAN,
11tfdb Kamm, Cuyahoga Co., O.

WANTED.—To exchange tested, untested, or mated pure-bred Italian queens, for a watch.
11d A. P. STAIR, Whitney, St. Clair Co., Ala.

WANTED.—To exchange 400 two-piece and 400 one-piece 5 $\frac{1}{4}$ x 6 $\frac{1}{4}$ V-groove secs., for 1000 4 $\frac{1}{4}$ x 4 $\frac{1}{4}$ Forncrook one-piece secs. (send sample); or for 5 purely mated Italian queens, daughters of imported mothers. J. M. YOUNG, Rock Bluffs, Neb. 11-12

WANTED.—To exchange, a good rifle and an opera-glass for Italian, Cyprian, or Albino (imported or home-bred queens) bees. Address
11tfdb OTTO KLEINOW, Detroit, Mich.

WANTED.—To exchange a pair of bantams for tested Italian or Holy-Land queen and a pound of bees.
FRANK SHILLING,
Jewett, Harrison Co., O.

WANTED.—Situation at once by a first-class bee-keeper who thoroughly understands his business.
FRANK CURL, 414 8th St., Des Moines, Ia.

WANTED.—Price lists from importers of Italian queens; also your names and address on postal for my circular of queens, etc., for 1887.
11d S. H. BLOSSER, Dayton, Rockingham Co., Va.

WANTED.—To exchange my new catalogue of bees, queens, new section-case, for your address on a postal card. Address F. A. EATON,
11-12d Bluffton, Allen Co., O.

WANTED.—To exchange, hives, sections, frames, crates, etc. (either flat or nailed), for white paint, box nails, foundation, belting, or any thing I can use. Send for free catalogue.
9-11-13d C. W. COSTELLO, Waterboro, Me.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this bee-use there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is often times quite an accommodation to those who can not afford higher-priced ones.

I have five black queens I will send to one address for one dollar. W. P. DAVIS, Goodman, N. C.

I have half a dozen mismated Italian queens for 40 cents apiece, or \$2.00 for the lot.
J. T. VAN PETTEN, Linn, Kansas.

I have a few good hybrid queens, ready by return mail, at 40 cents each.
JAMES H. EATON, Bluffton, O.

I have some fine Italian hybrid queens now ready to mail at 50 cents each, and guarantee safe delivery.
N. A. KNAPP, Rochester, Lorain Co., O.

Hybrid queens, reared from select tested Italian mother, for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. GEO. W. BECKHAM,
8-9-10d Pleasant Hill, Lancaster Co., S. C.

SEE HERE!—60 black and hybrid queens for sale; are good laying queens, nearly all young, and are sold to make room for Italians. Ready now. Satisfaction and safe arrival guaranteed. Return all dead queens in same cage; all clipped. Price 30 and 45 cts.
L. T. AYERS,
Box 657, Kankakee, Kankakee Co., Ill.

During the coming summer I wish to requenee my apiary (almost entirely), and would sell my present stock of queens (all reared from imported mothers, Root's importations) from at 35 to 50 cents each, or 3 for \$1.00, to one address; and if any one gives me a trial, I will give satisfaction for any thing reasonable.
ELIAS COLE, Ashley, Delaware Co., O.

A Cheap Smoker.

MARTINSVILLE, O., Apr. 11, 1887.
Messrs. Bingham & Hetherington, Abronia, Mich.:
Enclosed find \$2.50 for two large 2 $\frac{1}{2}$ -inch Bingham smokers (wide shield). They are for my neighbors. I have one of the Bingham smokers that I have used for six years, and it is as good as ever. Send for half-dozen rates.
Respectfully, AMOS R. GARNER.

PRICES OF BINGHAM SMOKERS.

	By Mail, Postpaid.
Doctor Smoker (wide shield).....	3 $\frac{3}{4}$ inch \$2 00
Conqueror Smoker (wide shield).....	3 " 1 75
Large Smoker (wide shield).....	2 $\frac{1}{2}$ " 1 50
Extra Smoker (wide shield).....	2 " 1 25
Plain Smoker.....	2 " 1 00
Little Wonder Smoker.....	1 $\frac{1}{4}$ " 65
B. & H. Honey-Knife.....	2 " 1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address
T. F. BINGHAM, or
BINGHAM & HETHERINGTON,
9-12db Abronia, Mich.

WILL SELL tested queens at \$1.25 each; untested at 75 cts. each. Nuclei and full colonies for sale, either Italians or Syrians.
8tfdb ISRAEL GOOD, Sparta, Tenn.

FOLDING BOXES.

Our Cartons for enclosing **Section Honey** are the **best & lowest priced** in the market. Made in one piece. With **Tape Handles**. With **Mica Fronts** or without. In the **Flat** or set up. **Printed** or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. **Price List Free.** Samples 5c.
14 oz. Glass Jars \$5.25 per gross, including Corks & Labels, 1-2 & 2 gross in a Case. Catalogue of Honey Labels free.
A. O. CRAWFORD, S. Weymouth, Mass.

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KIND WORDS FROM OUR CUSTOMERS.

I received the tin separators and foundation, and think the latter is exceedingly fine. Freight charges were 87 cts. CLYDE BELL.

Clarksville, Ind., May 13, 1887.

THOSE SPECTACLES.

I received the spectacles I ordered from you, and they suit me better than any other that I have yet found, although I have bought several pair at a higher price. G. B. SHANKLIN.

Zoneton, Ky., May 8, 1887.

THE NEW LAWN-MOWER AHEAD OF ALL OTHERS.

Mower received Monday night at 5:30—quick work. It is the nicest-working machine I ever used, and I have worn out some that cost \$12.50 to \$20.00. You can say for me, that, no matter what the price may be, no mower of the size can surpass it in any point. J. E. POND.

Foxboro, Mass., May 23, 1887.

THE FINEST MAPLE SUGAR.

Inclosed please find check to balance account. The goods sent me were satisfactory in every way. The maple sugar was the finest I ever melted in the N. E. corner of my mouth. I judge your impression of Holly is not very good. I live three miles from there. It is like most other towns—good and bad, and too much of the latter.

Holly, Mich., May 11, 1887. GEO. F. BRONDIGE.

A PLEASSED CUSTOMER.

I am under obligations to write to you, and words are inadequate to express my sincere thanks for your kindness in sending the A B C book. I don't feel that I ought to accept it for the damage to the saw, as the book is worth twice the amount the saw cost, and I am willing to pay you something for the work. I would further say, it is a truly wonderful treatise on bee culture. It is a delight to read it, besides the great information it gives in every department pertaining to the subject. A. CROOK.

Rosamond, Ind., May 30, 1887.

"A LONG WAY AHEAD."

I am just in receipt of goods ordered from you by freight. Everything is satisfactory and first class. I know it is a good long distance to send for this class of goods; but when you come to put them together, and use them, they are a long way ahead of any thing else I have seen manufactured in this region and I am more than pleased with your prices and goods. Accept thanks. J. SWIFT.

State Center, Ia., May 17, 1887.

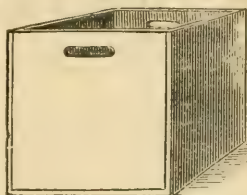
I received your card, stating that you would ship the bees May 16. I received them May 18th at night, in good condition. Thanks for your promptness. I put the bees up in a hive that had been robbed. They went to work immediately, and are still at work. I am well pleased with them. If I can learn how to keep my bees from being robbed, I shall be very thankful. E. W. PETTYS.

Windsor, Broome Co., N. Y., May 20, 1887.

[See "Robbing," in the A B C.]

POTATO BOXES

(TERRY'S).



These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Al-

though they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

A. I. ROOT. Medina, O.

Choice Italian Queens.

One untested, 75 cents; six, \$4.00; twelve, \$7.00. Tested, \$1.00, from natural swarming. 12-16db

Merican Stubbens, Oxford, Butler Co., O.

HEADQUARTERS IN ILLINOIS

For the Manufacture and Sale of

BEE-KEEPERS' SUPPLIES

8 and 10 frame Simplicity hives furnished at a great reduction in price. Nice sections and foundation specialties. A full line of supplies always on hand. Write for my new price list 12-15d

F. M. ATWOOD, Rileyville, Ill.

HELLO! HELLO! HELLO!

Smith & Jackson are ready to ship 75 queens, 500 pounds of bees, 1000 pounds of comb foundation, by return mail. All bees and queens guaranteed safe arrival. All mistakes made right. Send for our price list for 1887, now out.

SMITH & JACKSON, Box 72.
Tilbury Center, Kent Co., Ont., Can.

For Sale!

16 H. P. UPRIGHT TUBULAR BOILER.

Complete, with heater, injector, steam and water gauges, etc. Price on board cars, \$250.00. 12tfdb

WATTS BROS., Murray, Clearfield Co., Pa.

DADANT'S FOUNDATION FACTORY, WHOLE-SALE AND RETAIL. See advertisement in another column. 3b1fd

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address 6tfdb HENRY ALLEY, Wenham, Mass.

HARRINGTON'S AD.

I have a fine lot of tested queens; will sell them in the month of May at July prices:

SELECT TESTED	\$3.00
TESTED	2.00
UNTESTED, After May 20	1.00

Holy Land and Albinos same price. If you wish something fine give me a call. I never had a case of foul brood. My two apiaries are located 3½ north and 2 miles south respectively in a bee-line from the Home of the Honey-Bees. tfdb

H. B. HARRINGTON, Medina, Ohio.

Fine Premium Italian Bees.

My queens and bees were awarded first premium at the late Chenango Co. Fair. All interested, send stamps for sample of bees, also for my new price list and circular to suit the times, and method of rearing fine queens. Untested queens, \$1.00 through the season. Tested, \$1.50. Mrs. OLIVER COLE, 6tfdb Sherburne, Chenango Co., N. Y.

Cheap for Cash. 9 crates of two each, sq. 60-lb. honey cans, Root's new, 70c a crate; 5 crates, 2 each, round 50-lb. cans, used once, 40c a crate; 1 No. 5 Novice extractor, 2d hand, with knife, \$4.00. 500 top metal corners, \$1.00. 12d **C. E. THWING, Hamilton, Mo.**

BEES! 300 COLONIES ITALIANS.

Ready for spring delivery at 60c to \$1.00 per lb., according to time. Choice queens and brood cheaper in proportion. Also ADJUSTABLE HONEY-CASE, hives, and supplies. Circular free. 6tfdb **OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.**

WRITE TO JOHN CALLAM & CO.,
LUMBER DEALERS, KENTON, OHIO,
— FOR PRICES ON —

BEE-HIVES, SECTIONS,
And General Supplies for Bee-keepers

New Factory. Low Prices. Good Work.
24-11db

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfdb

ONE-PIECE SECTIONS A SPECIALTY.

Sections smooth on both sides, V or nearly square groove, dovetailed ends, or to nail, at \$3.50 per 1000.
B. WALKER & CO.,
Capac, St. Clair Co., Mich. 8tfdb

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.



ON 30 DAYS' TRIAL.
THIS NEW ELASTIC TRUSS
Has a Pad different from all others. Is cup shape, with self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person lies. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail, Circulars free.
EGGLESTON TRUSS CO., Chicago, Ill.

1-12db

COMB FOUNDATION.

Dunham Brood Fdn., 40c. per lb.; extra thin Vandervort Fdn., 45c. per lb. Wax made into fdn. for 10 and 20c. per lb.

SAMPLES FREE.

3-tfdb.

F. W. HOLMES, Coopersville, Mich.

PRIME & GOVE,
BRISTOL, + VERMONT,
— MANUFACTURERS OF —

Bee - Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples free. 5tfdb.

HEDDON'S

— 1887 —

CIRCULAR

NOW READY.

ADDRESS **JAMES HEDDON,**
DOWAGIAC, MICH.

1tfdb

SHIPPING CRATES THE BEST, THE CHEAPEST.

Write for prices.
1tfdb

G. B. LEWIS & CO.,
Watertown, Wis.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22tfdb

A. F. Stauffer & Co., Sterling, Ill.

WANTED TO SELL.

100 3 frame nucleus colonies of hybrid bees, with queens, each \$2 50
Two-story Simplicity hives (complete) each 1 50
Chaff hives (have been used some) each 3 00
Highly bred hybrid queens, each 1 00
4 1/2 x 4 1/4 sections (V groove) per M 4 50
The photo of my apiary given as a premium on supplies purchased to the amount of \$5.00, cash orders. Will exchange nuclei colonies or ext'd honey for apiarian supplies, if new.
7tfdb **J. M. YOUNG, Rock Bluffs, Nebraska.**

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdb

HONEY COLUMN.

CITY MARKETS.

DETROIT.—*Honey.*—There is no good comb honey in the market to quote. *Beeswax*, 23 to 24c.
June 10. Bell Branch, Mich. M. H. HUNT.

CHICAGO.—*Honey.*—Very little comb honey here now; but what is offered is not prime and prices are unchanged. The demand for all grades is small. Extracted 5@6; selling more freely.

Beeswax, 22c. R. A. BURNETT,
June 3. Chicago, Ill.

PHILADELPHIA.—*Honey.*—Honey is in very light request and prices merely nominal. The only inquiry whatever is for 1-lb. sections of choice goods; in other descriptions there is absolutely no movement.

Beeswax is in light request and quotable at 22@24c per lb. for pure Southern; and 20@22c per lb. for pure Western
PANCOAST & GRIFFITHS,
June 10. 122 Dock St., Philadelphia, Pa.

BOSTON.—*Honey.*—No change in prices. Sale very slow.
BLAKE & RIPLEY,
June 10. Boston, Mass.

KANSAS CITY.—*Honey.*—Our market is almost bare of honey. Waiting now for the new crop.
June 11. CLEMONS, CLOON & Co.,
Kansas City, Mo.

CLEVELAND.—*Honey.*—The market is dull, there being no movement in honey; dealers are awaiting the new crop. Prices unchanged.

June 11. A. C. KENDEL,
Cleveland, Ohio.

ST. LOUIS.—*Honey.*—California has advanced her price on extracted honey which I think will give us a little better outlet for our home product in the near future. Extracted is already a little firmer. Comb honey, a large stock still on hand; choice white comb, 1-lb. sections, 10c; off, 8@9c. Broken comb, 6@7. *Beeswax*, 21; selected, 23@25.

June 10. W. B. WESCOTT & Co.,
St. Louis, Mo.

MILWAUKEE.—*Honey.*—The old crop is getting nearly out of sight; supply very small, and demand limited; and values have undergone very little change. Choice white comb, 1-lb. sections, 12@12½; choice white comb, 2-lb. sections, 10@11. Dark comb not wanted; entirely nominal. Extracted, finest white in kegs and pails, 6½@7c; same in bbls. and half-bbls., 6@6½; finest amber in bbls., 4¼@5; dark in bbls., 4@4½. *Beeswax*, nominal, 25c.

June 10. A. V. BISHOP,
Milwaukee, Wis.

ST. LOUIS.—*Honey.*—We quote choice comb 9@11 cts.; latter is for choice white clover in good condition. Strained in bbls. 3¼@4 cts. Extra fancy, of bright color and in No. 1 packages, ¼ ct. advance on above. Extracted in bbls., 4¼@4½ cts.; in cans, 5 cts. Market dull and receipts increasing.

Beeswax steady at 21 cts. for prime.
June 10. D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

CINCINNATI.—*Honey.*—Demand for comb is slow and prices are nominal. Demand for extracted honey from manufacturers is improving. No change in prices. It brings 3@7 cts. a lb. on arrival. There is a good demand for *Beeswax* which brings 23@22 cts. a lb. on arrival.

June 13. C. F. MUTH & SON,
Cincinnati, Ohio.

I have 400 lbs. of nice comb honey in one-pound sections, for sale cheap, if bought soon.
LOUIS WERNER, Edwardsville, Ill.

LOOK HERE!

Hayen sells tested queens for \$1.25; untested, 75 cents. 2 frame, \$2.10; 3 frame, \$3.00; 4 frame, \$4.00. Full colony, \$6.00. Bees 75 cents per pound. All prepaid. Add queen you want to the above.
12tfdb W. G. HAYEN, Pleasant Mound, Ill.

CARNIOLANS.

GENTLEST, BEST HONEY-GATHERERS, AND THE QUEENS THE MOST PROLIFIC OF ANY KNOWN RACE.

Untested queens, each \$1 00
Imported 5 00

Safe arrival by mail guaranteed. Ten cents extra on all home-bred queens, to Oregon, California, Canada, and to cross the Atlantic.

Imported queens will be mailed direct by Mr. Benton from Laibach, Province of Carniola, and will be the "finest selected queens." Send for circular.

S. W. MORRISON, M. D.,
Chester Co. Oxford, Pa.
Mention this paper. 12tfdb

Tell Everybody we are running fourteen hours a day on linn and buckeye sections, V-groove, one-piece. We are up with our orders, and can ship to customers at once, the handsomest sections on the market for the money. For sample and prices address
12d J. B. MURRAY, Ada, Ohio.

Bees Cheaper Than Ever.

I have had charge of A. I. Root's apiary for three years. Have now started an apiary and am ready to fill orders promptly. Untested queens, 75 cts.; tested, \$1.00; select tested, \$1.50. Satisfaction guaranteed.

WM. P. KIMBER,
6tfdb Medina Co. Medina, Ohio.

CHEAP BEES. 2-frame nuclei with untested Italian queen, \$2.00. 3-frame, with untested Italian queen, \$2.50. Full colonies, \$5.00, simplicity frames wired. Safe arrival guaranteed. 12tfdb
(Near Detroit) M. H. HUNT, Bell Branch, Mich.

QUEENS! QUEENS!!

From the egg when not under swarming impulse. Holy-Lands, Italians, and albinos, \$1.00 and \$2.00 each. None sent out that we would not use ourselves. Satisfaction guaranteed. 12d

Pelham & Williams, Maysville, Ky.

Italian Bees and Queens.

Full colonies \$6.00 (Simp. wired frames, combs built on fdn.). Bees per lb., 80 cts.; ½ lb., 50 cents. Frame of brood and bees, 75 cts. Tested queens, \$1.50. Untested, \$1.00. Queens reared from imported mother.

MISS A. M. TAYLOR,
10tfdb Box 77. Mulberry Grove, Bond Co., Ill.

2 Lbs. Bees With pure Italian queen, only \$2.00; with hybrid queen, \$1.75. Pure queen, \$1.00. Full colony in Simplicity hive, \$4.00. 1213d J. H. REED, Orleans, Orange Co., Ind.

IF YOU WANT Fine Honey-Gatherers, try Moore's strain of Italians. See advertisement in another column.

BEES! Italian BEES! Italian BEES!

FULL COLONIES, \$4.50. THREE-FRAME NUCLEI, \$2.25.

11tfdb G. W. GILLET, Wellington, Ohio.

FOLDING BOXES.

Our Cartons for enclosing Section Honey are the best & lowest priced in the market. Made in one piece. With or without Tape Handles, With Mica Fronts or without. In the Flat or set up. Printed or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. Price List Free. Samples 5c.

14 oz. Glass Jars \$5.25 per gross, including Corks & Labels, 1-2 & 2 gross in a Case, Catalogue of Honey Labels free.
A. O. CRAWFORD, S. Weymouth, Mass.



Vol. XV.

JUNE 15, 1887.

No. 12.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

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A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

TIMELY SUGGESTIONS ON THE USE OF THE T SUPER.

WHEN TO PUT ON AND WHEN TO TAKE OFF THE HIVE, ETC.

SINCE the T super has taken such a boom, beginners and others have requested more especial instructions as to how to put in the sections, exactly when and how to put the first super on, when to add another, about how many a colony could take care of to advantage, and when to take the supers off, and finally when to remove them all. As there seemed to be no one more fitted or competent to answer the foregoing questions, we requested Dr. Miller to give minute directions, and to give every little manipulation just as if he were talking to beginners. We fancy that some of the veterans will find some directions from the doctor that will be of some service to them. Without any preliminaries whatever, he proceeds as follows:

Until you get the knack of it, putting sections in T supers is a little awkward. Have the supers on some plane surface, where the sections can't fall through if the tin T's are displaced. Place the T's not very carefully over the sheet-iron supports. Put a row of four sections (I'm supposing you use $4\frac{1}{4} \times 4\frac{1}{4}$ sections) along the side, which will fix the T's in their places at that side of the super; now a second row next the first, but leave a little space between them, and then slip a separator in the space. Continue in this way, pushing the rows close together as more room is needed. Supposing that you commenced filling the side of the super next to you (the *side* and not the *end* of the super must be next you), the rows will be pushed togeth-

er till only two rows are lacking, then put in a row close to the side next to you; then put two sections at one end of the last row, and one at the other, leaving the super full, all but one section. Putting in this last section is the hardest part; and unless your super is roomy, you will give up T supers in disgust and say it is too hard work to fill them. Don't hurry the section in, but push it down steadily, holding it square in its place, and it may go in with no trouble. One end, however, may catch on one of the T's, and you must raise the section the least trifle and crowd it enough to one side to allow it to pass down beside the objecting T. Sometimes it may be necessary to use a case-knife, pushing down the section till one side is caught inside its T, then pushing down the knife inside the T at the other end of the sections, when the latter can be crowded into its place. My assistant, who has had more experience than I in filling supers, says she latterly prefers to put first a row of sections in the side of the super furthest from her, the same as I have already described, and, next, to put a row in the side next to her, thus holding the T's in their place for the rest of the work. Then the last two separators can be coaxed into place, commencing at one end, but taking care that this end does not get much the start of the other, or the separator will be wedged fast. Possibly there may be so loose a fit that one or both of these last two separators may be put in before the last row of sections.

The general rule given for putting on sections is when bits of white wax are seen along the tops of the frames. I would rather not wait for this. Where clover is the first surplus crop it is well to put on supers when clover-bloom is out in full. This, at least in my locality, occurs ten days or two weeks after the first clover-blossoms are seen; but

if you do not keep a sharp lookout you may not see these first blossoms. It is a decided advantage to replace one of the central sections in the first super with a section partly filled that has been kept over from the previous season. You will find such a section occupied very promptly; and although the bees may empty all the honey out of it, they will still remain, at least a few of them, on it; and as soon as they have a surplus to dispose of they will commence refilling this section. It is possible that an empty section from which the honey has been emptied the previous fall may do nearly or quite as well, but I have never tried it.

When the first super is well filled with bees, and the work well started, the sections perhaps half filled, a second super should be added. Perhaps that does not give exactly the right idea. On one hive the super may be almost filled with honey, and the colony not yet ready for a second super, while another colony may be ready for a second super before its first super is more than a quarter filled. If a colony is very strong, and seems to have more than enough bees to occupy one super, if the honey-flow is good and likely to continue, it may be well to add a second super in a short time after the first, even if little has been stored in the first. This second super is to be placed under the first, which is raised for this purpose, and the bees will immediately occupy it. Indeed, I have added supers thus in rapid succession, always putting the empty one next the brood-nest, until the bees were working in six supers at once, and, as a result, I had six supers mostly filled with unfinished sections. The strongest colonies will not often need more than three supers at a time; for before the fourth is needed, the first is ready to be taken off. Don't wait for every section in the super to be finished before taking off; for if you wait for the outside ones to be finished, the central ones will become dark. When all but six or eight of the outside ones are sealed over, take off the super and return the unfinished ones, to be finished in another super. Whilst at the beginning of the harvest, the effort should be to urge the bees to occupy a large number of sections as quickly as possible; when the harvest begins to wane, the opposite course should be pursued. Here is a colony, for instance, that has about filled all its sections, but they are not capped over. If these are raised up, and a super of empty sections put under, the bees will commence work on the empty ones, and the honey-flow may stop before the upper sections are finished. On the other hand, if no empty sections are given, the honey-flow may continue longer than anticipated, and the bees become crowded for room. So, toward the last of the season, instead of putting the empty sections under, put them on top. The bees will go on finishing the sections already occupied, nearly if not quite as well as if no super had been put on top. If the bees need more room they will go up into the upper super, and if they don't need it they will let it alone. When the honey-flow ceases (and you will tell it by the bees becoming cross, and robbers troubling), it is best to take off all the sections, making a clean sweep of it.

Friend Root, you said my little book was lacking in pictures, and I never jawed back a word. But, now, you have put Hutchinson's book along with it, and I don't think that's fair. I don't think I ever so fully appreciated the educating power of an illustration as I have since your insisting upon

it so strongly, and I know of more than one place in my book where I studied how to clearly describe something till my head ached, that a picture would have cleared up in a twinkling. But in Hutchinson's book I can hardly see the same need of pictures. It is merely a new use of old things, and I am not sure that illustrations would help much. The chief purpose of the book was to give in full a peculiar system of management, and I am glad, very glad, to add it to my small collection of books on bee culture. He has told his story very concisely; and whether I follow his plan or not, if I want it at any time I can find it in compact form without hunting through all the pages of the periodicals. Then if you must have pictures, the cover of the book is itself a beautiful one. I know I wouldn't take 25 cts. for my copy. C. C. MILLER.

Marengo, Ill.

SOMETHING SEASONABLE AND VALUABLE FROM M. S. ROOT.

SWARMS ENTERING EMPTY HIVES.

MY brother, M. S. Root, now of National City, San Diego Co., California, sends me the following letter, which was written to himself. Some of our readers will doubtless remember, that on page 608 last year, my brother related an experience similar to the following:

M. S. Root:—In reading GLEANINGS I saw you had some notion of embarking in the bee-business. Now, let me give you a little circumstance that may be to you a benefit. My nephew and I kept bees, but concluded to divide, so he took his off and sold all the bees; but there were some boxes left, and some comb. To save the comb from the moth he put three or four in a box spread out evenly, so they did not touch by 2 inches. He then piled the hives or boxes four and six high, so that it looked like the stump of a tree. This is the way we save comb in or out of doors, in this country.

One day, in course of time he walked out to see if his comb was keeping all right, when he saw some bees in one tier. On lifting the lid there was a veritable swarm of Italian bees, so he took the box, put in some more frames, and set it out for business. He concluded to go through and see if there were any more, and kept on till he fixed up six good swarms. In a few days he went back again and found some more in. About the time swarming season was over he had 17 good swarms, with no effort on his part to collect them. There was no chance for the old bees to come back, as they were hauled three days' journey off. This may be too late for your neighborhood for this season, but I have been very busy. My bees have not swarmed much—only about 8 or 10 this season.

J. N. GILCHRIST.

El Montecito, Santa Barbara Co., Cal.

Many thanks, brother Marsh. The item you furnish is, I opine, one of much value. I suppose your correspondent uses the terms "boxes" where he means hives—or, at least, we would call them hives. The point is this: He by accident stacked up his empty hives in tiers, so they resembled trees in the forest. Each hive contained three or four combs, placed far enough apart to be safe from the moth-miller. The entrances to these hives were also left open. Now, it is

my opinion that the arrangement will work in any neighborhood where many bees are kept. I would suggest, however, having the hives in the shade of trees—say scattered through an apple-orchard, or run the tiers up so as to be among the branches of the trees. There will be little or no danger from moth-millers, for the combs are kept at least two inches from each other. I should suppose the bees would be more likely to occupy the hives toward the top, or those up among the limbs of the trees. Many of our readers will remember that our friend J. H. Martin, of Hartford, N. Y., advocated placing hives in the tree-tops, a good many years ago. Every little while we have reports of new swarms taking possession of hives left ready for them during swarming time; and now it only remains for some enterprising bee-man to push this matter forward to success. Suppose we have as many facts as can be furnished on the subject; and as it is now swarming time, let us all experiment a little in regard to the matter. We will have some hives put up among our evergreens at once; and instead of having the bees bother us by clustering among the evergreen branches, as they do almost every season, hold them clustered on metal-cornered frames of comb. As there has been considerable trouble in our apiary lately, from bees missing their location and getting into neighboring hives, a few hives set among the evergreens might be a help, after they catch a truant swarm apiece.

ILLUSTRATIONS.

FRIEND HUTCHINSON'S REPLY TO ANSWERS AND QUESTIONS REGARDING HIS NEW BOOK.

IT is possible, friend Root, that you are correct about the need of cuts in my little book; I can not help thinking, though, that the majority of those you mention, if not the whole of them, would be superfluous. I am thankful, though, for the criticisms, and I wish to say right here that I should be grateful to any one who will write and tell me where he thinks a cut might be used to advantage; or, in fact, where he would have the book different in any manner; and if there is any point that is not fully understood, I shall be happy to explain, either by private correspondence or through the journals; and all the points that are brought up shall be well considered in a re-issue. I should enjoy very much indeed the work of getting up first-class engravings for a book of my own writing. You say, friend Root, that, had I added nice engravings, the book would have started out with a great boom. It seems to me that it has started out with a pretty good-sized boom as it is, as 1000 copies have already been sold, and the sale increases with each week, while every mail brings complimentary letters from pleased purchasers.

CONTRACTING THE BROOD-NEST.

On page 431, Mr. Gould asks me to explain why the brood-nest should be so contracted as to be low and flat instead of tall and thin. If side storing were practiced, the tall and thin style would be all right; but with top storing only, the space above the brood-nest is too small to give room for a sufficient number of boxes. Bees work the best in

boxes when the brood is near the boxes; and it will be readily seen that a low flat brood-nest gives the greatest possible opportunity for placing a large number of boxes in proximity to the brood. My objection to side storing is, that it adds considerably to the complication of fixtures, and very much to the labor.

Mr. Gould's plan of dividing colonies and allowing the bees to build combs in the brood-nest will probably prove satisfactory unless done just upon the eve of swarming, when drone comb would be the result. If done earlier, when the queen is laying in full vigor, most of the comb built would probably be worker, unless the queen were old.

MAKING FEEDERS WATER-TIGHT.

Let me tell Dr. Miller that he can make feeders water-tight by so putting them together that one piece can not shrink away from another, and painting the joints with white lead before putting them together. I have 60 Heddon feeders that I made three years ago, and they have never given a particle of trouble by leaking. Let me also add, that in "feeding back" there must be no space in the hive or about the feeder that is more than "bee-space," or it will be filled with comb. At no time are bees so prone to build brace-combs as when being fed abundantly.

W. Z. HUTCHINSON.

Rogersville, Mich., June 6, 1887.

There seems to be a sort of feeling among newspaper men that an editor should never own up to having made a mistake, and never apologize if he can possibly help it. I once heard of a man whose death was published in the village paper. He repaired at once to the editorial sanctum, and commenced something like this:

"Mr. Editor, you published in your paper last week a notice of my death."

The editor nodded, and the man went on:

"Well, you see I am not dead."

"We see that you are alive now," replied the editor, evading the question, as you will observe.

"But," said the man, "I haven't been dead at all; in fact, I haven't even been sick, and I want you to state it so in your next issue."

"We are quite willing to say you have come to life," replied the editor, "but we can not very well say that you have not been dead. It is hardly possible we should have so stated it in the paper unless it were a fact." And our friend from the country was obliged to go away without getting any better satisfaction than the above. Now, although I have never seen any thing quite as bad as this, I have been very many times greatly pained to notice the reluctance with which an editor admits that he has been even a little mistaken. Please look back and remember how seldom any editor has frankly owned up that he had published a mistake in regard to this matter of bogus comb honey. It does not seem to be fashionable to say right out in print, "We were hasty," or, "We were entirely in the wrong, please excuse us." Perhaps you may wonder, dear friends, what all this has to do with friend Hutchinson's article above. Well, it has just this to do with it: In criticising his book because of the lack of cuts, I thoughtlessly bore on stronger than I should have done, and I want the readers of GLEANINGS to forgive me, as well as friend

H. himself. After I had dictated the reply, I had a feeling that I had been a little off from the track; and when it occurred to me, I hastened back to the office to have the reply cut down, or taken out entirely; but it was already on the press, and could not be changed. For my part, I should like to see the book illustrated in the way I suggested; but when I said it needed as many illustrations as there were pages I was probably extravagant. The book has had quite a boom, if you have already sold one thousand.

Now in regard to this other matter: I am always glad to see the editors fully alive to every item that appears in their publication; but it makes me feel sad to see them set a bad example before their readers, by getting into controversies. Editors are, however, human, like other people; and may God give me enough grace and honesty of purpose to own up frankly whenever I have transgressed, or said more than I intended.

OUR P. BENSON LETTER.

HIVIN JENNY'S SWARM.

JENNY gathered up sum moar tin ware includin a horn, and when all were set agoin you jist ot to herd em. My! if it wuzzent a racket. But before this, Jack hed drawed a bead on the swarm with his gun and let fly, sayin, "If that air charge hits the old king in the face, ittle spoil his snoot for him."

As mife be naterally expected with sitch a racket, the bees soon was all lit onto the lim. "She's a snolly-goster," sez Sid. She ment it wuz a big swarm. "Why, thuz mourn 2 bushel of bees," sez Em. "Whattle I ever git em into?" sez Jenny. "Git a barl," sez Mary. So they got a barl that was layin down on its side for a hen's nest, but just then Jenny's bruther Will got home and sed that was his hen's nest and they coodent no swarm of bees go into it, not onlest he cood hev a peace of hunny. Jenny fincly had to promicce him the last piece of hunny they made, and the barl was sot under the swarm. "Now you must have a sheet under it," sez Mary. "Woont a table cloth do?" sez Jenny. "No, it must be a sheet." So she got the sheet and poot it under the barl and poot a cupple of sticks of fire wood under the ej of the barl. Then it was who shood shaik them down. "Jack izzent afeerd," sez Em. "What if they should take after a feller?" sez Jack. "I ges you kin run," sez Mary. So Jack took a long pole, and the rest all stood back, and he hights the pole kind a carefull like, shets his ize and makes 1 quick jab at the lim, and then drops the pole and runs like the hole swarm was after him. Then they all laffed for he had missed the limb and Jack cum back and tride it agane. This time he hit the lim and sum of the swarm fell on the ground, but floo back onto the lim. "The barl aint in the rite place," sez Jenny. "Rub it with tanzey and thale go in," sez Em. Will got sum tanzey and rubbed the barl, and poot it in the rite place, but before he hed time to git back out of the way, Jack give the lim a offle big punch and down cum the hole swarm, sum of em rite onto Will. "Mercy me, I got to git outa this," sez Will and he begun to scatter lively. Jack poot boath hands on his nees and jest doubled himself up a laffin at Will, when just then 2 or 3 bees steered straight for Jack. Run!

I guess he dld run. Boath hands a flyin like a windmill, a strikin his hair and a nockin off his hat. Thay coodent coax him back no way. "Cum and see them croll into the barl," sez Will. "No, I haint well," sez Jack. "I got to go home and do my chores. Sid, bring my gun and hat with you."



HIS HANDS FLYIN LIKE A WINDMILL.

In a little while the bees was pirty much all in the barl, and the ooddyence was admirin them when 1 of the dogs, being of a inquiring turn, came in ruther close propinkquity. A bee lit onto his back and that dog gave 1 yelp and jumped mourn 10 feet into the air. When he cum down he gave another yelp and then he looked aroun to see whair the coal of fire was on his back. Then he broke for the woods like a streak of greese litenin, evry spring givin a yelp, and it was 10 days before that dog got back home, lookin like hede bin throo a corn sheller.

P. BENSON, A. B. S.

Konkluded.

DOOLITTLE DISPUTED.

THE PIPING OF QUEENS.

I THINK G. M. Doolittle is justly considered good authority on most questions pertaining to bee culture, and the man who calls in question any assertion he makes ought to be well posted on the disputed point, and know whereof he affirms. I have been a bee-keeper for more than 30 years, and positively know that his theory (see page 434, June 1st) in regard to after-swarms and piping queens is not correct. I agree with him as to the time between the issue of the first swarm and the piping of the first queen, and the issuing of the second swarm, which, as he says, will take place with almost mathematical accuracy in nine or ten days from the first swarm; but I most emphatically deny that there is only one queen allowed to leave the queen-cells at a time, or that only one pipes at a time, or that, as a rule, only one queen accompanies the second, third, or, in fact, any after-swarm. I know it, because I have many times heard two or more queens piping at the same time. I have seen and caught several in the same swarm, and I almost always find one or more dead queens under the hive when it is moved to its stand after hiving an after-swarm. There may be exceptions; but as a rule there will be two or more queens with after-swarms, but more especially third and fourth swarms. Friend D., examine this question and report.

A DEWEY.

Marshfield, Pa., June, 1887.

SUITABLE DRESS FOR WORK AMONG THE BEES IN HOT WEATHER.

FURTHER HINTS AND SUGGESTIONS FROM DR. MILLER.

THE following letter was sent to me from Dr. Miller. It was not written for publication; but as it contains so many matters of interest, we give it below:

Dear Ernest:—Your article on page 30 interests me much. I am glad to see you getting down to the minutiae—to the little details. I strongly suspect, that in hot weather woolen may be better for next the skin, and that you are right, both for fat and lean people. I am making some inquiries that may help us out.

I once had a hat of the same kind, I think, as you describe. I do not think I like it so well as the five-cent hat I use. Their cost is so little that I generally keep a set at each apiary, a veil being sewed to the rim of each. My wife says you would not wear one, "they are such awful-looking things." It is true, they are not models of beauty, after being worn awhile, especially after being wet. They present an appearance something like this:

I like them better, however, after they assume this drooping habit. They shade the face and eyes better, and hold the veil in better shape. They have a look of such abject humility that no one is likely to be very hard on you for anything you have done, while you are covered by one of them.

I wish you would try a pair of Newburgh (N. Y.) overalls. They are thoroughly made, no button ever comes off. Each button about the waist has plainly stamped upon it, "Newburgh Overall." The material is good, and they are neatly fitting; in fact, they are a standard article.

You have said nothing about the suspenders. An article of good, substantial, *easy* suspenders at low cost is something very much needed. I doubt if the right thing is yet invented. It should be something that will admit of stooping forward without lifting you out of your seat or tearing off the back buttons. This is usually accomplished to a certain extent by the use of rubber. The rubber, however, is not durable, and becomes worthless with age, even if not used at all, and I want a pair of suspenders fitted to each pair of pants, to avoid adjusting them each time I change; and this makes it that, on a pair of pants but little used, the rubber is spoiled while the suspenders are very little worn. I think the right suspender will have no rubber in it. I have worn several pairs of Argosy suspenders, made with cords and pulleys, without rubber, and like them well, but they are expensive, costing 50 cts., and the cord wears through in some spot before long, and then the whole thing must be thrown aside.

Once while I was sitting in an office in Chicago, a man came in with a pair of patent suspenders, in-

tended to cover the difficulty by maintaining the same easy feeling, no matter what position the wearer took. I tried on a pair, and they certainly were a success. I have since been sorry I did not buy a pair, as I have never seen any like them since. There was some sort of a patent device attached, which it was claimed secured the proper adjustment upon any change of position, but I doubt if this device had any thing to do with it. I think it was simply the way in which the suspenders were fastened on the pants.

Since writing the above I have been experimenting a little, and I think I have hit upon the principle used in the suspenders last mentioned. Move the two back suspender buttons 6 or 8 inches further apart, and use only the hindmost of the two front buttons on each side; in other words, have no buttons before or behind, but two at each side, three or four inches apart. Now put on a pair of the plainest kind of suspenders, crossed on the back in the old-fashioned way, and I believe you will find them easy for the stooping so common about beework.

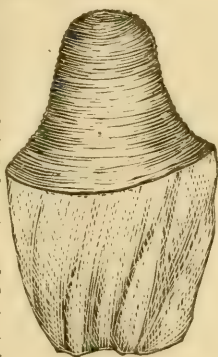
Now let John get us, on the 15 or 20 cent counter, a pair of stout suspenders that are made of one straight plain piece—no rubber, but heavy enough to remain pretty rigid, with *strong* leather at each end. Possibly there may be an advantage in having the two buttons at each side in front; that is, having each front end of the suspender attached to two buttons.

Since the above was written I have made inquiry as to the matter of cotton or woolen clothing for those exposed to extreme heat. My brother-in-law is superintendent of iron and steel works, having two or three thousand men under his control (from the miners to the last workers on steel), and he says all his experience is in favor of woolen clothing. The only men he knows of who don't wear woolen shirts when so exposed are puddlers, and they strip to the waist; but as a very general thing they wear woolen drawers. That is the result of an experience among iron and steel workers extending over thirty years.

C. C. MILLER.

Marengo, Ill.

Many thanks, friend M., for your kind letter. I am still wearing the underwear I spoke of on page 30, current volume; but I have not seen the day this spring that I desired to take it off, and we have had days when the thermometer registered over 90°, even in the month of May. You know, that when warm weather comes very suddenly in the season we feel the heat much more. While others were complaining about the very hot weather, I don't think I experienced any inconvenience. I know of several who are wearing underwear, and they claim that it is not only better on very hot days, but quite a protection when the weather changes suddenly, and the air feels chilly and damp. I do not know, but suspect, that the great majority of those who are exposed to a considerable amount of sun heat or artificial heat would be a great deal better off with light underwear. I know that I have not, for the past few years, suffered so much from the heat as I formerly did when I removed all underwear at the approach of hot weather. I think it is a fact everywhere, that where men are obliged to work with and around melted metals or blast-furnaces,



DR. MILLER'S BEE HAT AND VEIL.

you will find them wearing woolen; and I see no reason why, if this class of men find need of this additional protection, bee-keepers and others exposed to the direct rays of the sun should not have a similar protection. In regard to the headwear, I presume, friend M., you take a good deal of comfort in that old hat or hats. I like a hat that is light, not unbecoming, porous, one that does not produce any pressure around the crown, and which will keep its shape, rain or no rain. The bee-keeper's hat, which I like so well, is made of linen; and when it is on my head, during a hot day, I can feel the cool breezes circulate through my hair. It is so light that I scarcely know when I have it on; and for the sake of convenience I wear it all the time, in the office and out of doors. I notice, also, that the men in the field, those making garden, working among the bees, or piling lumber, are beginning to wear them quite generally around the Home of the Honey-Bees.—In this connection I might mention that those light rubber boots, designed for ladies, are just the thing for wading in the grass, and for doing light work among the bees. Yesterday, during the rain, when we were locating some bees in the Swamp Apiary, it was raining; and as there was long tall grass and weeds, I should have gotten the bottoms of my pantaloons pretty well soaked had I not worn these light rubber boots. Lest, however, some one may take a notion to order said boots of us, I will say that, although we sell almost every thing under the sun, we don't want to have any thing to do with selling boots.

CARPETS VS. BARE FLOORS.

FRIEND TERRY CONSIDERS BOTH SIDES OF THE SUBJECT.

FRRIEND ROOT:—At a number of farmers' institutes last winter, speakers brought up the question as to whether it would not be better for our health to abolish carpets from our houses. One of the strongest attacks on this way of covering the floor was made by an eloquent clergyman at the central institute at Columbus. I also heard a well-known professor wax eloquent over bare floors and rugs, and tell how unhealthful it is to have floors covered with carpets. He was evidently in earnest, as I found, when calling at his office, a bare floor, except that there was a small rug under his chair and table. But he was a bachelor, and some one else besides his wife had to scrub the floors and shake the rug almost daily.

Now let us bring a little plain common sense to bear on this question. First, which is easier for the wife—to scrub floors or to sweep carpets? I think all will agree with me on the latter. It used to worry me greatly to see my wife mopping and scrubbing the floor in the kitchen of our old house, two or three times a week. Hence when I built a new one, and the carpenter asked if I wanted a hardwood floor in the kitchen and pantry, I told him, "No, sir; put in all pine floors." Since then, all floors have been carpeted, except in a store-room upstairs, and the porch floors. Even the latter I sometimes wish were carpeted, when I see my wife spending so much time keeping them clean. I

shouldn't wonder if she worked harder on those four porch floors than on all the carpeted floors in the house. Keeping carpets clean is a small job, since we have good carpet-sweepers. Once in a while, to be sure, wife has to go over those with a broom, in the old-fashioned way, and she never gave me any really satisfactory reason for it (I suspect it is partly a hankering after the way she was brought up in—mother's way); but usually a light running-over with the little sweeper takes up all dust in sight, and doesn't unnecessarily stir up what wasn't before in sight, to the discomfort of every one. This machine sweeping is very easy work, particularly if your correspondent keeps the bearings well oiled. It doesn't take the muscle that it used to, to scrub, and certainly the position occupied while at work is rather more dignified.

Which is the more comfortable floor to live on? The bare one, with here and there a rug, perhaps, or the one nicely covered with a good carpet? Well, for me, home without carpets would be almost as bad as without a mother. I presume the advocates of no carpets would agree with me pretty well in what has been said so far; but they would bring up the all-important point of healthfulness, and say that was to be considered first of all. Well, if carpets are injurious to our health, perhaps we had better go backward a little in our civilization. Let us see. What is the claim against them? So much dust containing injurious germs. A rug can be rolled up carefully and taken outdoors, and shaken. Floors can be washed, and no dust raised. Sweep a carpet that has been down for some time, and you fill the room with dust. These particles get into the lungs. They can take care of a moderate quantity and work them off, or keep them out; but when they come in too large quantities the door-keepers in the lungs are overpowered. If the germs in this dust are not positively injurious in themselves they may so use up the machinery provided by nature to ward them off that other germs that are injurious and that happen along, or to which one may be accidentally exposed, are able to get a lodgment. This, I believe, is about the ground taken by the scientific opposers of carpets. It seems plausible; but I doubt, practically, whether one needs to abolish carpets on this ground. Now, our homes should always be kept dry. Fires should begin early in the fall, and be kept up late in the spring. A little, once in a while, during a cool time in the summer, would be wise. The dust collected under the carpets, so long as it is kept dry, and is not disturbed, will injure no one. The conditions are quite different from what they would be in a damp cellar during warm weather. The greater part of the dust under carpets is simply dirt or earth, that has been tracked in. There may be, and probably will be, under some conditions, some injurious matter; but kept dry it is quite harmless, particularly if let alone. When the housewife sweeps, then comes the danger—when the dust is stirred up so as to be floating thickly in the air she breathes. If she will see the matter as it is, and use a sweeper carefully, having doors and windows open when practical, so the wind can take out the dust necessarily raised, as much as possible, I think she may live to a ripe old age, for all of the dust imbibed. Any way, I would sooner my wife would die of too much dust in the lungs rather than of too much hard work scrubbing and mopping. I should feel less directly to blame. I

know that too much hard work kills many farmers' wives. I am not entirely certain about how many deaths are the result from carpet dust, under reasonable conditions. At any rate, the latter death would be the more dignified. It would sound best, if the truth were told at the funeral, and it does generally leak out around, now, if a man works his wife to death, even if the minister doesn't speak of it.

Seriously, I think this point of the unhealthfulness of carpets has been carried too far, according to our present knowledge, by some extremists. If the ladies will take up and clean the carpets, or, rather, see that the men clean them, when they get so they can not keep the surface reasonably clean without raising too much dust, and if they will use a good sweeper instead of a broom, as far as possible—in fact, bring their good common sense to bear on the matter, I think they may not fear to carpet every room in the house.

Of course, there are exceptional circumstances. If some member of the family were taken sick with some contagious disease, the carpet should be taken up immediately from the sick-room floor. Some breadths might be laid down, or some pieces, to prevent noise in walking, and then be shaken daily. This would give the sick one as pure air as possible, and the pieces could be destroyed when the patient got better, thus disposing of any germs of disease that may have found lodgment in the carpet; otherwise, at some future time, when the carpet is taken up, another member of the family might be stricken with the disease. On account of purer air it might be well to have only rugs in all sick-rooms, and a plain whitewashed wall would also be better than a papered one.

I visited at a home last winter where all the lower floor was covered with Brussels carpet, kitchen and all. The good wife did her own work, and her husband told me he found she could keep a Brussels carpet clean with less dust and sweeping, and he valued his wife more than his money. It is true, that no dust to speak of will go through these carpets; so this is a way to avoid dirt under the carpets. We took up one the other day that had been down nearly four years. An ingrain carpet would have got more under it in four weeks. I think seriously of getting them for dining and sitting rooms, as it will save so much taking up, etc. But I must stop or I shall have the men after me for getting their wives' ideas up too high. Never mind; the ladies will defend me with their brooms—no, carpet-sweepers, I mean. That is the only trouble with the sweepers—they are not so handy to drive out the dog with, or scare the hens off the porch.

My wife has read this, as she always does all my letters, before they are mailed. She says: "All right; send it along; but remember, I have got a clincher on you whenever I want a carpet cleaned, in the future." Well, I must own I had rather preach cleaning carpets than to practice. That is one reason in favor of the Brussels. Perhaps that man I told of was more selfish, after all, than careful of his wife.

T. B. TERRY.

Hudson, O., May 25, 1887.

Well done, old friend. Before I attempted to say a word in reply I just carried the proof-sheet over to the house, and sat down by the kitchen stove (even if it is the 2d of June a fire was rather comfortable) and de-

sired my wife to sit down while I put her through the catechism. Our kitchen and pantry have hard-wood floors, and we mean to keep the floors painted, but it has not been done. This mopping business is something that has annoyed me more than a little. While I was reading, one of the children went to get a drink of water, and some water dripped across the kitchen floor. My wife put after the mop, in spite of any thing I could say, and she would not hear me through until she had mopped up the clean water that had been dropped on the floor. She did not tell me what hurt the clean water would do, but the women-folks have some reason. She says she dislikes mopping; but carpets in the kitchen, where there are so many children as we have, get so awful dirty she can not tolerate them. If a hard floor is kept well painted, or soaked with beeswax, the labor of keeping it clean is very much less. I presume our bee-men can afford beeswax enough to wax the kitchen floor, if anybody can. So long as the floor is well waxed or painted, grease-spots, or any other thing, do little or no harm; but since the paint has got worn off, every spot of grease has to be scrubbed and got out. I can not tell why this is necessary, either. If it were my kitchen, I think I should let the grease soak into the wood as deep as it wanted to. I wouldn't have it get so bad that the children would slip down and grease their clothes, but I should be very glad indeed to have some arrangement devised for saving so much back-breaking work that must all be done by the queen of the home. I suggested Brussels carpets to Mrs. Root, but she asked where the dirt will go to if it does not get through the carpet on to the floor. I told her it would probably stay in the carpet, but she says she would not have that.

She wants to shake hands with your wife on that "clincher." She says if you succeed in getting the men-folks to take hold and even help to clean the carpets, the women of our land will owe you a big vote of thanks. Come to think of it, she did not use those very words, for she does not express herself as strongly as I do; but I am well enough acquainted with her so I know that is just about what she meant by what she did say.

In regard to porches, the house we always lived in before we moved into our present one had no porches at all; but, like yourself, when we built our present home we thought that lots of porches would be nice; but Mrs. Root says now, that, if she were going to have another house, she would cut the number of porches down to about two instead of four. Why, it seems as if all outdoors, pretty nearly, had conspired to make her use all her spare time in scrubbing the porches. Not only the children and the men-folks, but spiders and flies, have put their heads together to see how they could soil the porches most; and then, to cap the climax, the English sparrows discovered the porches were just the place to roost; and when they did not make trouble enough, they commenced building nests in them. I wonder if we can not have porches made of tile, or something that dirt would slip off from,

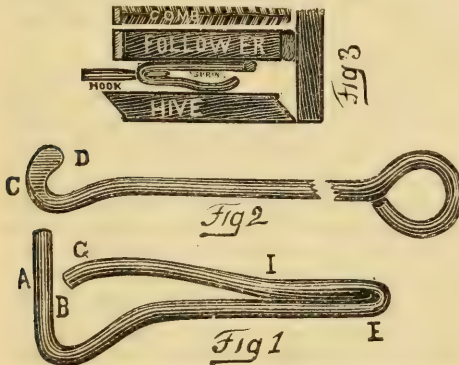
with little or no scrubbing. I think I have seen carpets on porches in some of the cities, laid down loosely, so as to be rolled up and carried in when it rains. Will not some of our lady contributors give us some suggestions in regard to these very important matters? No doubt the men-folks are greatly in need of reformation in this matter of lessening the labor of their wives; but I am afraid it is also true that many wives, through mistaken notions, overwork themselves.

WEDGING UP WIDE FRAMES.

WM. MUTH-RASMUSSEN'S WAY.

IN my supers I use, for the production of comb honey, 7 wide frames, holding 6 Simplicity sections each. Back of the wide frames I place a follower, or division-board, and behind this is a space of from $\frac{1}{4}$ to $\frac{1}{2}$ inch, averaging $\frac{3}{8}$ inch, in which I used to insert a wedge, in order to crowd the frames snugly together. The wedges were, however, very unsatisfactory, as each had to be fitted to its particular super, and while crowding the follower at the top they would often force it away from the wide frame at the bottom. Sometimes they would, when propolized, be very difficult to get out, and occasionally they would slip down out of reach.

At first I thought of using screws (*a la* Heddon) instead of wedges; but partly from an aversion to having the screw projecting outside the super, and partly because I saw so many conflicting reports about the desirability and practicability of screws, I came to the conclusion that a spring of the proper shape, strength, and cheapness was what was wanted.



MUTH-RASMUSSEN'S SUPER-SPRING AND HOOK.

I send you by this mail such a spring, and the accompanying drawings will more fully explain it. The perpendicular arm, A, Fig. 1, which stands at a right angle to the spring proper, serves two purposes; viz.: 1. In inserting the spring between the follower and the end of the super, and by placing the heel, C, of the hook, Fig. 2, on the perpendicular arm, at B, the spring is easily pushed down into its place. 2. The perpendicular arm prevents the spring from turning, when in place. To remove the spring, insert the flattened point, D, of the hook in the loop of the spring, at E, and pull up as shown in Fig. 3.

The hook is made of the same material as the

spring, and is hammered flat, from C to D, so as easily to enter the loop E.

For material, I used wire from an old spring-mattress. I first tried wire which had been burned, but found that I could not temper the springs. Wire which has not been burned answers, however, admirably. The bed-spring is first straightened out and cut into lengths of 8 inches. The horizontal arm is then bent in a vise. Next, the point G is slightly bent at a right angle to the horizontal arm, to prevent it from catching in the wood; and then the loop E is bent, partly in the vise and partly by hand. Finally, by placing a piece of iron or a small cold-chisel, between the prongs of the spring, and with a hammer tapping at I, the spring is given the right shape. It can be opened or compressed by hand to suit different distances, if it is either too large or too small; but if it has to be opened much it had better be done by bending it at I, as much bending at E, where the sharpest turn is made, might break it at that point.

WM. MUTH-RASMUSSEN.

Independence, Cal., May 5, 1887.

Friend M., your device is quite ingenious. The only objection I can make is, that it is a little complicated; that is, you are obliged to have these wire springs and a hook to pull them out with. I presume, however, a common button-hook would answer just as well, and these are to be found in almost every household. I quite agree with you, that I should not want any screws sticking out of the side of the super or honey-case. The springs you describe should be made by machinery, at a very small expense, and may be they are the best thing that can be devised for the purpose. Are we to understand that one spring is all you use to each division-board?

HEDDON'S LETTER.

SEPTIC DISEASES.

I COME to GLEANINGS with the above subject, which is not only of interest to my understanding, but my health and life as well. I find that some believe that radical impurities, in considerable quantities, will pass down through many feet of sand. I can hardly credit it. Here we dig through 25 feet of sand to water. Now, if an old privy-vault were six feet deep, and full, would its impurities ever lead down through the remaining 19 feet of sand, reaching the water? If so, how far away would the well have to be, to be out of danger of having its water thus tainted? Will Prof. Cook, Mr. Terry, or some one who *knows*, please give us his experience?

WIDE FRAMES.

I have noticed the clash of views between W. H. Shirley and yourself, as found on page 393, and I think that friend Shirley is nearer right. For several years we have used a few tin T cases, and, with the exception of first cost, I find every thing favoring the one-story wide frame, where separators are to be used. Where no separators are desired, our old-style case is so much better than all others that I can not improve it, nor do I find that any one can. All alterations have been found to be detrimental. As you say, my break-joint slat honey-board is a great protection to the sections above; but this is more against brace-combs than propolis, to which

Mr. Shirley has reference. When sections taken from a T super are cleaner than those taken from one-story wide frames, those wide frames are not properly constructed. T supers, in their best construction, can protect sections no better, nor as well, as my well-known surplus case; and Mr. Shirley has used hundreds of each side by side.

WINTERING.

My bees have wintered better than usual, and some in a higher and some in a lower temperature than heretofore. At the same time, a few, standing by the side of the successful ones, have died with diarrhea; and as temperature and humidity could not have been the cause, and as the excreta is pollen and water, I am still firmly grounded in the pollen theory.

WHOM SHALL WE TRUST?

I note the above in connection with the name of J. R. Reed, of Milford, Wis., on page 409. I have had most satisfactory dealings with Mr. Reed, and I wish the man success; not only because I believe him to be honest, but because he is a chronic invalid and needs the good reputation he has earned in his transactions with me. JAMES HEDDON.

Dowagiac, Mich.

Friend H., I am astonished at what you say in your opening paragraph; but as the subject is one of such vital importance I have decided to answer it by the article given below.—In regard to wide frames and T supers, my position was, for a good many years, that the wide frame afforded the best protection. So many were against me, however, I was compelled to give in a little in regard to T supers; but it seems now, friend H., you are getting back to where I used to be. The wide frame is, however, a more expensive arrangement than the T super.—I am very glad indeed to have you speak a good word for friend Reed. It is always a pleasure to me to recommend men for promptness and honesty.

THE WATER WE DRINK, ETC.

THE CONSIDERATION OF A QUESTION PROPOUNDED BY FRIEND HEDDON ON PREVIOUS PAGE.

I PRESUME friend Heddon has not had the experience in underdraining ground that friend Terry and myself have had. While visiting at Prof. Cook's I found he also had some splendid underdraining on his farm. Well, now, our soil is such a stiff clay that farmers dig holes in the lots, for watering cattle, that hold all summer; but for all that, we have proved by many experiments that underdrains will draw the water from 10 to 20 feet in each direction, the distance depending upon the depth of the underdrain. For instance, it is laid down in the books that underdrains 2 feet deep should be 20 feet apart; 3 feet deep, 30 feet apart; and 4 feet deep, 40 feet apart. When our underdrains were first put in, I was a little skeptical about the water finding its way to the underdrains as far as 20 feet off; but soon I found the water passed off from the surface of the ground quicker and quicker, indicating that the water had formed passageways, even down through the hard yellow clay subsoil. Now, if an

underdrain 4 feet deep drains the water out of the ground for 20 feet in each direction, what would an underdrain do that is 5 or 6 feet deep? Of course, there will be a limit somewhere; but I am inclined to think that a well that is 20 or more feet down to the surface of the water, will, in the process of years, take up surface water for a distance of several rods in every direction from the well. Now, then, the point friend Heddon makes is, would not this foul water become so thoroughly filtered in passing through such a mass of earth (or sand, as he terms it) as to be practically pure and fit for drinking when it reaches the water in the well? This would be the case for some little time after the well was first dug; but all who use filtering material are aware that, sooner or later, the filtering material becomes loaded, and does not act as a filter any longer. Now, if a privy-vault were only 25 feet away from the well, I feel quite satisfied that, in the course of four or five years, it would affect the water in the well. In sandy soils, I should think it might in less than one year. The microscope, I believe, will indicate positively whether the well-water contains matter of this description; and a great many times it is perceptible to the taste, that the water of certain wells has become contaminated by drainings from sinks, stables, pig-sties, or places such as friend H. has mentioned. There is one reason why the occupants of the dwelling do not notice it. By being accustomed to it day by day their perceptive faculties in regard to taste become so accustomed to it that it is not noticed. I remember, that, when I was a small boy, father and I went to a tannery. I said to him, "Father how can those people live in such an awful stench and smell?"

He asked one of the workmen how it was. The reply was, that they did not notice any smell at all; and father told me that, after I had remained there a little while, I would not notice it either, and I found it to be the case, and I presume many other people have remarked the same thing over and over. The people who are using water that has death and disease in it have become so gradually accustomed to it that they don't discover by the taste any thing amiss at all; a stranger, however, who has been accustomed to pure spring water would be sickened by a single glass, and would at once pronounce it unsafe.

I am inclined to think that the greater part of our fevers, especially the typhoid type, and possibly the class of throat diseases in the line of diphtheria, mostly have their origin and growth from carelessness in regard to the location of our wells. Many of the cisterns are but little better. I believe Mr. Terry has given us the remedy, but I am afraid that even that remedy is not a perfect one. There is one thing we can all do; and that is, we can have the ground around our wells descend outward in every direction. This will carry the rain water away, and standing water during spring time and winter. Having the ground around the well thoroughly underdrained, and a good free outlet, accomplishes a good deal in this direction. This surface water,

then is carried away, instead of getting down into the well for an outlet.

Very much greater pains is also being taken with sink-drains and cellar-drains. In the construction of the cellars for the two houses we are now building for John and Ernest, I talked the matter over a good deal with the builders, and those who are accustomed to such work, and they say it is nowadays customary to have the slop-drain of sewer-pipe from 4 to 6 inches in diameter, and this large tile is laid with a good strong fall, so that the slops pass off quickly and surely. Now, there is so much danger from foul gases coming up through this slop-drain that a separate drain is constructed for the cellar to drain off the surface water, so it shall not get into the cellar. In our case a ditch was dug under the cellar walls, a foot in depth; then a place for the tile was cut out into the bank, the tile being on a level with the bottom of said ditch. After the tile is laid, the ditch is filled with cobble-stones or broken wall-stones; and on top of this foot of loose stones the wall is placed. With such an arrangement you will notice that no water can possibly get into the cellar, for the cellar bottom is a foot higher than the tile that drains it. Slop-drains should also have some sort of a trap that will make it impossible for any gases to rise up into the cellar, or into any room of the building. These arrangements cost some money; but, my friend, how much money does it cost to have typhoid fever in your family? At one of our bee-conventions Prof. Cook had one of the college professors give us a talk on statistics; and in his talk we were told just how many more cases of typhoid fever occurred, when the water of the wells stood very low on account of a drought. The lower the water is in the wells, the greater is the tendency for foul waters to find a passage into them, for the reasons given in the fore part of this article. I should be very glad indeed to have both Prof. Cook and Mr. Terry say how far I am out of the way in the foregoing.

BLESSED ARE THEY THAT MOURN, FOR THEY SHALL BE COMFORTED.

SOMETHING FURTHER FROM BRO. G. C. STOKELY—
SEE OUR HOMES FOR MARCH 15.

MR. ROOT:—Allow me to acknowledge your tender of sympathy and Christian sentiments, kindly offered to one in dire distress. Although an utter stranger to you, kind friend, I feel deeply grateful to you. I am trying earnestly to accept your admonitions in the same spirit which prompted them, and I trust I have profited by them. You have given to my few poor words a prominence that I did not contemplate; but I hope your Christian effort has reached other hearts as well as my own. I have received many expressions of the deepest feeling from friends. I know they are friends, for no other motive could induce these offers to me in this obscure corner; but I know that only those whose experiences are similar to my own can fully understand my case. Well, it is from this class notably that these expressions come, and I should find much

encouragement in the fact that, in many instances, their heart-wringing sorrows have been exchanged for rejoicing.

As these kind words come from all over this broad Christian land, it would be impossible to reply in severalty, so I must beg a little space in GLEANINGS, because this must have been the medium through which they learned my address, and I can only say to each and all of them, "May God reward you as he only can!"

It is a sad comment upon the gratitude, or, rather, ingratitude, of the human heart, to say that immunity from suffering, uninterrupted sunshine, never brings us to our senses or to our Savior; that, while we are sailing over summer seas, we forget to prepare for disaster, but so I have found it. Friend R., your imaginary picture of my once joyous but now poor broken home, is singularly truthful; and equally true is your remark, that few words oftentimes express a great deal. When the heart is sinking down, down, down, a great wave of despair rolling over us, the weight of a dark world crushing us yet lower down, then the agonized spirit finds little use for words. But few words are required to tell that hearts have bled—that joy is dead, that hope has fled, that all seems starless night. Our parent hive is queenless now; the flow of our earthly sweetness has for ever ceased; but we have the hope, and we cling to the promise, that we shall begin anew where the flowers shall never wither, and where the flow shall continue throughout the long summer of eternity. G. C. STOKELY.

Arnoldville, Ind. T., May 24, 1887.

Friend S., I have often thought of the very point you make, that when we have uninterrupted sunshine and blessings innumerable, instead of bringing our hearts to the Savior in praise and thanksgiving, it is quite apt to lead us to get cold and indifferent; and at such times nothing but great trials brings us back to the foot of the cross. May God be praised that you are indeed rooted and grounded on the rock Christ Jesus.

REPORTS DISCOURAGING.

"TEN LEFT TO TELL THE STORY;" HOW SHALL WE
REPOPULATE HIVES WHERE BEES HAVE
DIED THE PREVIOUS SEASON?

MISERY always likes company—not that I am glad J. F. Patton (see p. 406) had the misfortune to lose 18 out of 21 colonies last winter, but I was especially interested in his report in GLEANINGS, May 15. I packed 23 colonies in the fall, and there are only 10 left to tell the story. Some of those speak feebly, while the other 13 joined that "innumerable caravan," and have "gone where the woodbine twineth." Mr. P. will surely be awarded the "first premium," because of his happy way of accepting the inevitable, and we can not but admire his spirit of thankfulness for the remaining *three*. But I wonder if, after all, at times he doesn't have "rolled across his peaceful breast" just a shallow wave of blasted hopes.

Mr. Root, what is your opinion as to the best method for us of repopulating these deserted habitations—buying bees by the pound, frames of nuclei, or full colonies? In this vicinity this winter's

loss has been quite heavy, and is largely attributable to the long severe winter—the bees being unable to take sufficient flights, so they became uneasy and diseased. I know mine did not die of starvation, for they had an abundance of good stores. In pursuance of the above facts, is there any preventive, except emigration to some fairer clime?

MARCIA A. DOUGLAS.

Shoreham, Vt., May 28, 1887.

My good friend, circumstances have much to do in deciding the best way to stock your hives again with bees. If new swarms can be purchased cheaply near you, that will be, perhaps, the simplest way; and if you wish to have the Italians, purchase some Italian queens and then divide each swarm into three or four parts, giving to the queenless parts one of your Italian queens. If you have to send to a distance to buy the bees, one pound of bees, with a queen put in during the month of June, will usually make a good colony by fall.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A CARPENTER DRONE-BEE.

I SEND you by to-day's mail one drone carpenter bee. I caught him while he was looking for a mate. The blossoms are out here, and now is the time they are mating. If he is alive when you receive him, you can handle him without fear of a sting. If the drone carpenter bee survives the winter, why will not the drone bumble-bee?

G. J. FLANSBURGH.

So. Bethlehem, N. Y., May 16, 1887.

We sent the letter to Prof. Cook, and he replies as below:

The bee is in truth the drone carpenter bee, or *Xylocopa Virginica*. That it should be around at this season, and should mate now, does indeed seem strange, and contrary to the habits and economy of its near congeners. It is true, however, that these bees are very different from other species of *Apidae*. They bore into solid wood (see Manual, page 28), and thus make a nest, where they are measurably well protected. Thus there would not seem to be the same necessity for them to come late in the season. They also hibernate, and so their living over the winter would not involve such consumption of food as would that of the honey-bee. The whole subject needs investigating.

A. J. COOK.

Agricultural College, Mich., May 23, 1887.

PUTTING FOUNDATION IN SECTIONS.

I take my one-piece sections and rip through the center with my buzz-saw what is to be the top when folded, ripping five or six at one time; then when folding I fold and fasten in place one-half of the slit top, and, after pinching the fdn. to this piece, I fold the other half down, which secures it so no bee can pull it down unless they bite it off. I can put in the fdn., when I am folding the sections, about as fast as I can fold them without. I have tried this way for two or three years, and do not find that it weakens them much.

J. L. HYDE.

Pomfret Landing, Ct., May 31, 1887.

Your plan of putting foundation into sec-

tions will work nicely, and, if I am correct, has been used by various ones. The same plan is employed by our English friends for fastening full sheets of foundation in the top-bar of brood-frames. There are one or two objections, however, which I would urge against this method. In the first place, it is not every one who has a buzz-saw. In the second place, it mutilates, not to say disfigures, the section. In the third place, I hardly think it is as good a plan as the method of fastening foundation to the top of the section by compression. This is done with the foundation-fasteners advertised for the purpose, any one of which will fasten the foundation neatly, quickly, and securely into the section, without the necessity of grooving the under part of the section, or sawing into it.

THE NEW JAPANESE BUCKWHEAT.

On the 18th of March you sent me a 5-cent packet of Japanese buckwheat. About the 15th of April I planted one-half the seed (I gave the other half to a brother bee-keeper) in a piece of ground, about 3 x 7 yards, in drills 15 inches apart. When 6 inches high I gave it a hoeing. It is now waving and bowing to the earth with maturing grain. This new grain I expect to return to the earth in about two weeks as a second crop. I think this variety of buckwheat will do well here in the South, as it seems to thrive here right along in dry weather—a thing silverhull fails to do. This latter neither produces grain nor nectar in time of drought.

Whitney, Ala.

A. P. STAIR.

Friend S., your postal card upset me entirely. Here I have been buying this buckwheat in ten-bushel lots at a time, and paying enormous prices for it, when I might just as well have had a crop maturing in ample time to sow again this season as well as not. It just makes me ashamed of myself to think of it. Here I have green-houses, hot-beds, cold-frames, nice ground, and every arrangement to forward the crop, and it never once entered my head that I could raise two crops in a season and then scatter the seed ever so much faster and ever so much more cheaply than I am now doing it. There is no use in crying over spilled milk. Our seed shall go into the ground at once, and we shall have a big crop for next year, even if we don't do any thing more. I have understood there was difficulty in getting buckwheat to fill out the heads properly during the hottest summer weather; but I think good cultivation would give a pretty fair crop, any way. While I write, we have silverhull that sowed itself, now in bloom, and it might just as well have been the Japanese.

HOW AN A B C SCHOLAR, AFTER TRANSFERRING, WAS REMINDED OF P. BENSON.

I had a colony of hybrids in an old-fashioned box gum. I bought two Simplicity hives of friend Jenkins, at Wetumpka, and one fine untested queen. I began the operation about 4 o'clock in the afternoon, and completed the job about 9 o'clock. When I got through I resembled P. Benson's picture in May 1st GLEANINGS. My face was swollen out of shape; I got stung all over—face, hands, arms, legs, and on my back. I got them all in the new hive, and then came the job of dividing. I resorted

to my A B C book for instruction, and then proceeded. I divided them all nicely, and introduced my new queen. I kept her caged about 36 hours, and released her. She was received nicely, but, lo! in about five days, to my great astonishment I found them all clustered on a peach-tree. On examination I found that the old colony had robbed them of all stores, and they were compelled to hunt a new lodging. I hived them in the same hive, and am feeding them regularly. The old colony is doing as finely as I ever saw. I put them on foundation, and in four days they had a full set of as nice white pretty comb as I ever looked at. There were 9 queen-cells built in the old hive when I took the old comb out. I put them back in frames. B. G. LUTTRELL.

Luttrell, Ala., May 16, 1887.

CATCHING THE QUEEN IN A PEET CAGE.

I was reading in the A B C book to-night how you catch and cage your queens. You say, pick them up with the thumb and fore-finger. Well, now, I will give my way. I remove the comb that contains the queen that I want to cage, then set it down where it is handy to get at. The cut where Ernest is introducing a queen with a Peet cage reminds me of it. With the smoker I drive most of the bees away from around the queen, then with the slide partly drawn I set it gently over her. She leaves the combs and goes on the screen wire, and also the few bees around her. Generally I get enough bees in that way to send with her; then gently push in the slide, and queen and bees are caged without touching a bee with your finger.

MY REPORT FOR 1886 AND '87.

In the spring of 1886 I commenced with 13 stocks, and increased to 37. I bought two and lost one queenless one, so I had 38 to commence this spring with. They gave me 500 lbs. of honey, 400 lbs. of comb, and 100 lbs. of extracted. I wintered in chaff hives. I have built a bee-cellar to winter my increase in. W. D. SOPER.

Jackson, Mich., June 3, 1887.

DO BEES STORE WATER IN COMBS FOR WINTER USE?

About two weeks ago we took a colony of hybrids out of a tree. They had two large combs filled with water. There must have been a gallon and a half of water in the two combs. I suppose they stored the water in the winter time, while it was handy, as the nearest water in the summer time is about one mile away. Bees haven't done very well this season. So far it has been too wet. My first swarm came out the first of March. I took 30 lbs. of manzanita honey from a colony of Italians the 15th of March, and to-day I was looking at it and found every pound of it candied. My black bees get about enough from manzanita to live on, while the Italians are storing it by the pound. S. L. WATKINS.

Placerville, Cal., May 22, 1887.

Friend W., if it were not for the fact that you do not have rain in May in California, I should say the water you found in those combs was surely rain water that had got in by some means; but even this explanation would be a little improbable, for it is quite a difficult feat, as many of the friends may have discovered, to get water into the cells of a comb. I know that bees carry water in large quantities, but I have never been able to find more than a few cells full at a time in a bee-hive. They seem to use it up about

as fast as it is carried in. I can not for a moment believe they had struck on a plan of storing water in winter to last all summer; for even if they had sufficient ingenuity, the water would very soon evaporate and be gone, unless it were capped in the way that honey is capped.

ITALIANS THE BEST BEES.

My bees at this date were never in better condition. They have lots of brood, and are strong in bees. The drones have flown since May 1st. I never saw drones so early in the season. With me the Italians are the most profitable bees. They work the earliest in the morning, and quit the latest at night. They "hold the fort" against robber bees, and they are moth-proof. I had a colony reduced to a mere handful. They guarded the entrance better against robbers than a whole swarm of blacks.

Douglas, Q.

FRED LEININGER.

Your experience, friend L., seems to be the general verdict in regard to the justly praised Italians.

A FRIENDLY LETTER.

I feel as if I were somewhat acquainted with you, having read your A B C so much. Two or three years ago a friend of mine "went into bees" and had your book. I had no bees, nor did I expect to have then, though I wished to; but I borrowed the book, and read it with a great deal of interest. Last year I bought my friend's bees and the book. My daughter was reading it the other day, and she remarked, "If ever I go traveling, I am going to see A. I. Root." My Ernest, 11 years old, is very much interested in your account of your 14-year-old Ernest hiving the bees. Now he is married, as I see in the A. B. J. I also saw his name as president of a bee-convention. Blue Eyes is a big girl now — may be grown. Mrs. M. E. BROWN.

Athens, Clarke Co., Ga., April 14, 1887.

HONEY SEASON ENDED IN SOUTH CAROLINA.

I have had some trouble by bees destroying cells given them, and Mr. Doolittle has done us a favor in devising "queen-cell protectors," and you have also added another favor, in my humble opinion, in manufacturing them so neatly. Our honey season closes with the end of May; in fact, the most of it is over now. It has been a good honey year, despite the dry weather we have had until a week ago, and the high winds through the whole of April and the first week in May. My hives are all full of nice honey, but I could have doubled the quantity if I could only have given them attention; but I have been unable to do so, in consequence of sickness. My colonies will average about 50 lbs. of surplus. For ten days we have had some of the most beautiful weather possible anywhere in the world, which is saying a good deal, but not too much.

J. W. HUDSON, M. D.

Maysville, S. C., May 16, 1887.

A LETTER FROM NEW ZEALAND; FOUL BROOD THERE.

I have not done much with the bees yet. Last summer they had the swarming fever, and my spare time was taken up in making single Langstroth hives. They have not done yet, although we are within two months of midwinter. There was a small swarm yesterday. We are having splendid weather. Few places in the world can equal our climate. I increased from 6 colonies to 40. I took

only about 200 lbs. of honey. Next summer I hope to make something out of them, although the price of honey is very low—from 8 to 12 cts. per lb. We shall have to find a market in England. There is a large quantity of honey taken out of hollow trees in the forests. One consolation with us is, that the bees winter on their summer stands. I should like, though, if I had the time and means to put the hives in rows and put up a roof and board up the back. We are kept pretty busy with our cheese and butter farming, so I can not give that attention to bees I should like. I am sorry to hear you have had foul brood in your apiary. I hope by this time you have got rid of it. We are not free from it in this country. A neighbor, 8 miles off, has it among his bees very badly.

CHARLES DAVY.

Waugachu, Wauganni, N. Z., Apr. 18, 1887.

A LETTER FROM QUEENSLAND, AUSTRALIA.

The price of honey has gone down half this last eighteen months, with no sign of rising any more. The price now by the bulk is 2 pence, or 4 cents. The business is going ahead so fast that many are starting in it. I have made a solar wax-extractor after J. A. Green's pattern. It works well. I read, some time ago, in GLEANINGS, about some stingless bees. We have two sorts here, of no value as honey-producers; but I have taken as much as 3 quarts from a nest. All their comb is made of propolis, except the brood-nest. The brood is in its own cocoon, with no outer covering. S. W. Morrison, M. D., on page 15, Jan. 1, 1886, refers to a so-called discovery of a new use for honey, made by Dr. Comi, of Rome. In Book I. of "The Wars of the Jews," Chapter IX., by Flavius Josephus, written in the first century, he speaks of Aristobulus being preserved above ground in honey.

I think the worst thing we have to deal with here is excessive swarming. Mrs. Chaddock is put out with it in America. In Queensland they swarm from the first of September till the end of March, with very little honey after the middle of November.

I agree with Mr. Hutchinson on giving our new swarms starters only, as I tried it this season, and shall never give full sheets or combs any more.

ARTHUR BENSLEY.

Rosewood Gate, Qu., Aus., March 28, 1887.

A VISIT TO A BEE-KEEPER.

I was recently across the country some miles to visit a bee-keeper by the name of Johnson. He has about 200 colonies. He winters them in a cellar made especially for his bees. Among other ingenious devices he has a smoker. It is simply enormous—more than four times as large as mine, and of a peculiar construction, based upon a principle which seems to me to be good. He says it will not go out in a whole day, and is always ready for "biz" or buzz. Two years ago he threw away separators and burned over a thousand old-style sections. He has an odd section, $4\frac{1}{2} \times 5 \times 1\frac{1}{2}$, with open sides, or bee-spaces, all around. He says that these open-side sections are just as good in every way as the separator; and that, out of 8000 lbs. last season, he did not have fifty sections but that were first class. He makes his own foundation, and during the winter he makes his own hives. He also crates all of his sections, and has them ready by spring. His hives are all covered with clapboards nailed to narrow strips. He says this is better than dense shade. His crates are old style, and hold 30 sections, and constitute a part of the hive. He has a shop, tool-

house, and other buildings, to store away all of his traps; yes, and a honey-house, and racks on which to hang his frames of comb.

J. W. C. GRAY.

Monticello, Ill., May 30, 1887.

PUTTING GLASS IN FRONT OF THE ENTRANCE TO STOP ROBBERING.

I bought a colony of hybrids the first of May. They have worked well. May 30th I found that the neighboring bees were robbing mine. I threw a wet sheet over the hive, then consulted GLEANINGS that a neighbor had lent me. I followed the suggestion of putting a pane of glass before the entrance. They seem very quiet now. I do not know how long to leave the glass on. It seems to worry the bees. I think I shall enjoy taking care of my bees when I understand better how to do it.

MRS. G. N. HARMON.

Lawrenceville, N. Y., June 1, 1887.

Glass, in some respects, works very nicely; but one objection to it is, that it is apt to worry the inmates of the hive as well as the robbers. It should not be left before the entrance more than an hour or so. A better way is to contract the entrance so that not more than one or two bees can get out at a time. If you have a bee-tent, and they are robbing badly, place the tent over the robbed colony.

THE BEE-KEEPER'S HAT.

The bee-keeper's hat came to hand in good shape. It is a novel proceeding, to get a full-grown hat out of an envelope that cost only two cents for carriage. I improved mine by making a band of light zinc and attaching four small wires, which adds nothing perceptible to the weight, but holds the crown tight like a miniature tent.

A. A. PARSONS.

Avon, Ind., May 30, 1887.

Yes, it is a little strange that we can get a full-grown hat into a small envelope. In order that our readers may get the full force of friend P.'s remarks, I will say that the brim is four inches wide, and the whole hat fifteen in diameter. By a sort of sleight-of-hand movement it is folded so that it can be gotten into an envelope. It is slipped snugly into one not so very much larger than the common size used in correspondence. When the envelope is received, open and proceed to draw out the hat, and when about two-thirds of the way, you will be surprised to see it flop into shape. It is true, its weight is insignificant; and as a hat for holding out a bee-veil, I can scarcely imagine any thing more perfect.

FULL SHEETS OF FOUNDATION VS. STARTERS.

Will you kindly state, through your valuable paper, what are the reasons for using full sheets of foundation in the brood-nest, instead of starters only?

A BEGINNER.

Ohio, Ill., May 31, 1887.

By the use of full sheets of foundation in the brood-nest we can secure perfect combs, and we can also oblige the bees to build all worker comb or all drone comb, as circumstances in either case may demand. By the non or limited use of foundation in the brood-nest, you are subject more or less to the season and the inclination of the bees. As a rule, without full sheets of foundation we can not secure nice, perfect, well-filled

combs. Combs built by the bees are, many of them, imperfect, sometimes built on one side of the comb-guide, sometimes bulging clear out on one side, many times a good deal of drone comb when we want only worker comb. Where one desires to run for extracted honey, full sheets of foundation are a great saving. As a general rule, a beginner can not well dispense with full sheets of foundation; but I believe that one who has read W. Z. Hutchinson's book, experimenting carefully on a small scale at first, will be able to dispense with full sheets of foundation in the brood-nest, to considerable advantage, *providing* he is running for *comb* honey.

BEES DYING AT THE ENTRANCE.

One hive of my bees died at the entrance in the same manner as some one reported their bees doing some time ago, and I think you said that they were poisoned. Almost any time of day you can see, on the entrance-board, bees dying, shaking first, then before they die they behave as if some other bee had stung them. I thought at first that some one had been poisoning canker-worms with Paris green when the apple-trees were in bloom, but they behave the same now after the blossoms have gone. If they are not poisoned, and I think they are not, what is it? Can it be because they can not get water or salt enough? or do they get too much salt or potash, as some bees are for ever getting water out of the mud where we throw the slops? J. L. HYDE.

Pomfret Landing, Conn., May 30, 1887.

From your description of the way the bees act, dying at the entrances, I am strongly inclined to think you have what is called the "nameless" bee-disease. The symptoms are a sort of quivering and twitching motion. The abdomen is swollen, and the bee looks decidedly as if he were really sick. They will crawl out at the entrance and creep into the grass, as if desirous of the greatest good to the greatest number by riding the colony of their miserable presence. If you pinch the abdomen of the affected bee, a brownish substance will burst forth. This peculiar disease affects the bees alike in warm and in cold weather. The cure is, to destroy the queen and give the colony a new one. This treatment has scarcely ever failed. You suggest that your bees may have been poisoned. As a rule, I think it is always best to account for troubles of this nature from other sources.

WHAT AILS THAT COLONY?

My bees seem to have a strange way of doing business. They will swarm out, and almost invariably pitch for another hive. What is the cause? They have plenty of honey. I have had 25 swarms up to date, and will begin extracting in a few days. I have already taken some comb honey. I never lost a colony in wintering, and never fed five pounds of sugar. J. H. BURRAGE.

China Grove, N. C., May 6, 1887.

Friend B., it is hard to see why your bees swarm out as you describe, more than that it is a sort of mania that sometimes gets possession of apiaries in the spring. It usually takes place when there are a good many weak colonies. If you never had any loss in

wintering, however, I should suppose your colonies were strong. Probably the first swarm of the season went through with the maneuver you describe, and the rest followed suit, like a flock of sheep. I do not know that it has ever been explained, why a swarm of bees is quite sure to cluster in the same spot one that came out the day before did. In our back volumes a good deal has been said on this matter.

SLANDEROUS STATEMENTS IN REGARD TO THE REV. L. L. LANGSTROTH.

Was there ever any patent on the Langstroth hive? If so, who was the patentee? Some parties say it was patented about 1866, by Gould, or a name similar to that. It always ran in my mind that Rev. L. L. Langstroth was the inventor of that hive. Will you please give a full statement of this? These parties claim that Rev. Mr. Langstroth was a swindler, and was intruding on Mr. Gould's rights. This fellow says he has a book of this man's writings, and will show it to me. If this is truth, I was badly deceived. C. F. UHL.

Millersburg, O., May 23, 1887.

Why, friend Uhl, the whole matter is utterly ridiculous. Mr. Langstroth is better known in regard to bee culture than perhaps any other one man in the world; and whoever knows any thing about him knows him to be one of the kindest, fairest, and most honorable men who have ever blessed this fair earth. The man Gould has been as notorious for his evil deeds as Mr. Langstroth has been for his good ones. We have published this Gould as a swindler and scoundrel almost ever since GLEANINGS had an existence. He was formerly connected with what they called the "Common-sense" beehive. Such men are not worth listening to.

WHY DOES HONEY SUGAR IN EARLY SUMMER?

Can you tell why honey sometimes sugars at this season of the year? It is really hard to tell when it begins to sugar; but when once begun it seems that every cell that has honey in it is more or less affected, and will not extract. The honey does not seem to sugar as in the winter, but is more like mush-sugar. I have had it sugar once or twice in spring since I have been keeping bees. What is the best way to work it? Have you had any experience with it? The weather is dry and warm. I think the atmosphere in some way influences it.

Cornaca, S. C., May 24, 1887.

J. D. FOOSHE.

Friend F., this matter of the granulation of honey in the combs so as to resemble sugar is something hard to explain. A good deal has been written on it, but it seems it is honey from some particular source that behaves itself in this manner. I do not know that there is any remedy but to get rid of it as best we can.

SCREEN-DOORS FOR HONEY-HOUSES; WINTER LOSSES.

On p. 384 is a screen-door illustrated. My advice is (and I know whereof I speak), not to have any screen-door, but have a screen-window on the opposite side of the honey-house from the door, with exit-tubes in for the few bees, which are carried in on the combs for extracting, to escape. I have had the screen-door covered with robbers when I had to open it to enter the house; but after changing the

screen to the back side of the house, I had no trouble in opening the door, as the bees go to the side, where they come out to get a second load. This is safe advice, but you had better follow the advice of somebody else about wintering, for I undertook to control the temperature of my cellar with stoves and fire. Out of 225 hives I now have 25 queens with a handful of bees each, left.

We have met with a great loss in the death of our little boy, nine months old, after five weeks of sickness. The little fellow had just learned to say "papa" and "mamma," and was the pet of father, mother, brother and sister, and, in fact, the whole household of the Windham Hotel. I hope his death will prove to be a strong cord to draw us nearer to the place where we trust he is now, enjoying more than earth could have given him. O. R. COE.

Windham, N. Y., May 20, 1887.

Friend C., you have our sympathy in your great affliction; but we rejoice to know your hopes are anchored on the solid Rock.—Your testimony in regard to warming up cellars by artificial heat is truly a pretty strong one against it.

DOES HONEY FROM HONEY-DEW IMPROVE BY AGE?

Some time last year a friend gave me a 10-lb. can of honey, gathered from honey-dew the year previous. He called it "bug-juice," and said I could feed it to the bees. It had the color and taste of honey from honey-dew. This honey was kept during the winter in a cool dry cellar, and candied. In April I reduced it for bee-feed, and on opening the can I was surprised to see it look so nice. I put some of it on the table on the sly, with a good article of white-clover honey, requesting the family and boarders to give their opinion on the two articles. They were equally divided, one-half preferring the "bug-juice." To the party that gave me the honey, I sent a 3-qt. Mason jar of it, as something new, and they pronounced it excellent.

Bloomington, Ill., May 27, 1887. J. L. WOLCOTT.

I have never heard that honey-dew honey improved in the way you mention, friend W., and I hardly see how it could happen, unless the honey was in an open vessel, so the water could evaporate, and make it of heavier body. I am, however, aware of this: That very poor honey will granulate; but if you then slowly drain the liquid portion from the granulated part, and afterward melt the comparatively dry residue, you will have a very much superior article of honey. The item following illustrates this very fact of which I have been speaking:

SOUR HONEY IMPROVING.

I wrote you some time since in regard to a lot of honey, received of Westcott & Hall. Well, the honey was badly soured; but since the weather is cooler, it has granulated, and after skimming off the thin soured portion on top, the lower portion is very good clover honey. Now, Mr. Root, I am better pleased than I was; but I do not wonder that extracted honey is cheap when such sour, thin stuff as this is put on the market, and offered for sale to people who think all honey on the market is "made" honey (I did not question the purity of the honey). I thought I owed Messrs. W. & H. this explanation to you. It may be this is an average lot of honey on the St. Louis market; if so, the wonder is that it sells at all. S. S. LAWING,

Henderson, Mo., Nov. 22, 1886.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys; The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

JIMMY AND SAM INVESTIGATING.

THE reader will remember that we left Jimmy and Sam in the back yard discussing how they could find out who had been stoning their windmill the night previous. They immediately set to work to repair the damages, as they desired to get it done before the school-bell rang for the morning. They gathered together the portions of the mill that had been broken off. With hammer and wire nails they soon had the windmill reconstructed, and even the boys themselves were surprised to see how quickly they made the repairs.

"After all," said Sam, "the damage is not so great as we had at first supposed, is it, Jimmy?"

"No," said the latter; "and I don't believe that anybody would ever know that any thing had ever happened to the thing." They then hastened to school, for they had not a minute to spare. At recess they noticed that Jake seemed more sullen and reticent than usual. Heretofore he had been accustomed to mingle with the boys in their general talk, but to-day he and two or three of his companions were off by themselves. Jimmy and Sam immediately found Frank, a boon companion of theirs, and one to whom they intended to communicate the facts. As the three boys stepped to one side, Frank exclaimed at once, "You have struck upon the identical fellow."

"Hush!" said Jimmy; "don't talk so loud; we want to keep kind o' still like, and not let the rest of the fellows know that any thing unusual is up."

"That's so," said Frank. "Come, let's us three walk down the street a piece, and I will tell what Jake did for me last night—at least, I feel pretty sure it was Jake who did it."

"Why, have you been building a windmill?" said Sam.

"Oh, no!" replied the other; "but I had a mighty nice patch of watermelons in my back yard. I planted them and tended

them all myself, and I'll bet a dollar that you couldn't find a better patch than these anywhere. Well, they were just growing nice," continued Frank, as the other boys started on, listening in silence. "I also had a patch of mushmelons right near by. I watched them day by day. Three or four days ago I was looking at the patch, and I found one great big melon that I said to myself would be ripe in a little while, for I had been thumping it every once in a little while, to see whether it was fit to pull. Well, this morning, when I went out to pick it, the melon was gone. Then there were two or three of my mushmelons that were not ripe yet, and these were likewise missing. Then the scamp, whoever he was, not contented with that, had gone and plugged half the other melons. Of course, they were not ripe, and now they will rot on my hands. I tell you, I *was mad*. My mouth was all ready for a good watermelon, and I knew it would be nice, crisp, and cool."

"So you think it was Jake, do you?" said Sam.

"That is just what I think," said Frank. "It was either Jake or one of his old chums."

"What makes you think it was Jake?" said Jimmy.

"Why, the other day I saw him looking over on that patch."

"What are you going to do about it, anyhow?" said Sam.

"I will tell you," said Frank, looking all around cautiously, to see if anybody was within hearing; "you know Jake lives neighbor to me. Well, he and the rest of his click are going to have a rooster-fight in his barn to-night after school. I got an inkling from one of the boys, who told me about it. I will manage to get home somehow from school before any one else, and then I will secrete myself somewhere around the barn, so I can see all that is going on, and hear what Jake and his click have to say about their rampage last night. They must have been on a regular tear, for I have heard enough to satisfy me; and when I have a nice opportunity to slip away, I will meet you two boys at your workshop, and report."

"Won't that be fun?" said the two boys. "We will know for sure to-night, won't we?"

At this juncture the school-bell rang; and as the boys were at a considerable distance from school they had to run in order to get there in time. After school was out, Frank gave a knowing wink to Sam and Jimmy, and then proceeded around by the back way. When out of sight of the school-children, he started off on an easy run. He soon got down to Jake's father's barn, and hastily slipped himself down between the hay and the side of one of the stables. After working and twisting he finally got himself so that his eyes were just on a level with a crack. He discovered the two coops with the game roosters in, and with which Jake and his companions were going to have their cruel sport. He did not have to wait long before he heard swearing and coarse

talk. Jake led the way. "Come on, boys!" said he; "see what I've got here."

Frank, in his hidden retreat, immediately recognized some of his own property, but he kept quiet.

"My! where did you get that melon?" remarked one of Jake's companions.

"Hush! don't talk so loud; don't you know nothin'?"

"My! that's a fine one," continued his companion; "say! where did ye get it?"

"Why, last night me and Jack stole over to Frank's back yard, and we just very naturally laid hands on these things. Don't you ever tell, now."

"No, I won't if you give me a good big slice out of it."

"Now, if you will keep quiet," Jake continued, "I will tell you something else. After I got these melons last night I thought it would be mighty nice to take the conceit out of Jimmy and Sam; so about ten o'clock last night I went to Mr. Green's. On my way I picked up by the creek some pretty good-sized stones—some as big as your fist. These I hurled with all my might at the windmill, and if I didn't make things rattle! I expected the boys would be awful mad this morning, but for some reason or nuther nothin' seems to have happened."

Jake's companions munched away at the melon, and complimented him on his boldness. After the crowd had finished eating their stolen fruit they commenced their cruel fun of rooster-fighting, and took out some old dirty pipes and proceeded to smoke. This was not at all pleasant for Frank, brought up, as he had been, unaccustomed to such doings; and just as soon as a favorable opportunity presented he slipped up on to the haymow and jumped out of the door on the opposite side of the barn, and got home without any one knowing that his eyes and ears had taken in the situation. After supper that evening he hurried up to the bee-hive factory, where he found the two proprietors anxiously waiting. Frank then related the whole conversation which he heard in his hiding-place.

"I just knew it was Jake," said Jimmy, after Frank had finished his story; "but now we know for sure. I tell you, I will give it to Jake to-morrow; if he doesn't go home with some black eyes, I am mistaken."

"Yes," said Sam; "and if his crowd back him up, we two will set in."

"Well, well, well," said Mr. Green, as his head popped up suddenly from the barn stairway into the workshop; "are you having a council of war?"

To tell the truth, the boys would rather have seen some one else at just this moment. The latter, having now and then caught a word sufficient to make him believe something was brewing, had cautiously slipped up the stairway and heard the boys' conversation.

"Now, boys," said Mr. Green, "I fully understand your situation. I have seen a great deal more of the world than any of you. I understand that you are going to have revenge on the one who has been giv-

ing vent to his spite in the way he did last night. If I were you I would let this matter drop. If you now take revenge upon Jake, there will not only be one set of bad boys, but two sets of bad boys."

"Well," said Frank, "Jimmy and Sam have fixed the windmill as good as it ever was; but how about my melons? Am I going to let Jake and his crowd repeat the same operation again, and let them think I don't know who did it?"

"Your situation is a little peculiar, that is so. Well, I don't know but that you ought to tell him that you know that he stole those melons. Give him just enough facts to convince him that you know all about it, and he will think that one of the boys told on him. You can then advise him not to repeat it, or you will be obliged to do something besides merely notifying him. One thing more," continued Mr. Green. "I see you have been fostering a desire for revenge; and as a means to this end you are going to employ the method used by bad boys—that is, give blow for blow. Boys, there is nothing noble or manly about fighting; there is nothing in it that commands the praise or admiration of the better class of society. I hope, therefore, that, so far as possible, you will try to get that noble revenge upon your enemy."

"What do you mean by 'noble revenge'?" said Jimmy.

"I mean, do good to them that hate you," said Mr. Green.

Frank and Sam were ready to admit that Mr. G. was right; but Jimmy declared that it would make him "feel real good to black Jake's eye;" but still, he agreed to do nothing very serious, providing Jake would let him alone.

To be continued July 15.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

THE TRUMPET FLOWER.

My pa had 61 colonies last fall, but lost 3 in wintering. He intends to start another apiary this spring, and my sister Katie, age 18, is to take care of them. We live close to town, and can sell all the honey that we can raise. Pa will sow $1\frac{1}{2}$ bushels of alsike clover this spring. Do you know that the trumpet flower yields honey? We have a vine, or bush, in our yard; and last summer, when it was in bloom, we could shake half a teaspoonful of honey out of a single flower. It is easy to raise, very pretty, and blooms a long time.

JENNIE REPGLOE.

Centerville, Appanoose Co., Ia.

You say the trumpet flower had half a teaspoonful in each blossom, but you don't say whether the bees were able to get it or not—how is it, my friend? Of course, they would have to take quite a number of trips to and from the hive to carry half a teaspoonful of honey. The trumpet flower has been mentioned as a honey-plant in our back numbers.

FIFTY YOUNG QUEENS KILLED.

I have two hives, all my own; but I had bad luck with them. My pretty queen got killed when papa united them. Another young queen hatched which killed 50 queens that must have hatched with her. I found them in front of the hive, dead. The colony is doing very well now, and papa has very fine bees.
Atlanta, Ga. MARY HANBURY.

Your statement is quite an astonishing one, friend Mary. I have known a great many young queens to hatch out and be killed by a royal sister, but I do not think I ever knew as many as fifty from one hive.

PAINTING HIVES DARK.

I have one swarm of bees. Last summer it was so warm that the honey melted; and when it began to melt, the bees began to run out of the hive. It was like so much molasses and wheat all mixed up. I should like to come and see Mr. Root's bee-yard. More than that, I should like to see how he has his bees arranged.
Willie Carl.

Roaring Branch, Pa.

I fear, friend Willie, your hives must be painted some dark color, and left in the sun. A hive that is painted white will never, so far as my experience goes, melt down combs; that is, where the entrance is large enough, and unobstructed. If the bees get fastened in the hives in hot weather, they will create such a heat as to melt down the combs in any hive. Wiring the combs as we do, to keep them from being broken down, helps them to stand a moderate degree of heat.

A BOY'S EXPERIENCE IN HIVING SWARMS.

I will tell you how I got my bees. My eldest brother came home one evening last summer, and told my pa there was a swarm of bees hanging on a fence, a mile away. It was too late that evening to go after them, but early the next morning we went there and found the bees. Before sunrise we had them at home and hived. Pa said I might have them. They wintered well. Last summer I got 48 lbs. of honey, which I sold. I got a little more per lb. than pa did. My bees did not swarm last summer, and so I have only one swarm yet. It is a good one. Last summer I hived three swarms in one afternoon, all myself. They were large swarms. I got stung sometimes, but it does not swell on me. I guess I am too solid. I am 11 years old, and I weigh 120 lbs. We all like GLEANINGS very well. Pa had 62 swarms in the beginning of winter, and lost two so far. I am bound to be a bee-keeper, if I can make it win.

J. WARREN ROUTZON.

Findlay, O., Mar. 21, 1887.

SPEED IN PUTTING TOGETHER SECTIONS.

I tried my hand at putting up sections the other day. The first hour I put up 306; the second hour, 408. I think I did pretty well. The sections were those that pa got of you.

ALFRED HIGBEE.

Elsie, Mich., May 26, 1887.

If you will turn to p. 505, June 15, 1886, you will see that your record is slightly ahead of that of Pearl and Nettie Cranston, who previously have had the best record. You folded 408 in 60 minutes, which would be $6\frac{1}{2}$ in one minute. Nettie and Pearl each folded 500 in 75 minutes, which is just $6\frac{2}{3}$

per minute. So far as I know, your record is ahead of any other in putting together the *one-piece* sections. Still, however, your record as compared with that of Pearl and Nettie is so nearly equal that perhaps we had better say they are practically the same. Who can beat 408 per hour? To the first girl or boy who can equal 500 in one hour at a stretch, we will send any thing that may be selected from the ten-cent counter. Try again, friend Alfred. Perhaps in the third or fourth hour you may be able to win the present. Let us hear from you, little folks.

BROTHER WALTER'S BEES.

My eldest brother, Walter, who is 18 years old, has 70 hives of bees, part in Simplicity and American hives. He has two smokers, one Clark's cold blast and the other a Quinby. He has his bees in two apiaries, one at home and the other at Linn Grove, four miles off, where there are plenty of linn-trees. The bees are building queen-cells, and fixing to swarm. They are gathering lots of pollen from cottonwood, willow, dogwood, and sassafras. Bees commenced gathering pollen the 22d of January, from elm. Walter has traded his Novice honey-extractor for A. J. King's, made to take any size of frames. Honey sells at 10 cents per lb., and wax at 17 cents. There are not many people who keep bees around here. ROSALIE E. SOMERFORD.

Navasota, Texas, March 11, 1887.

WHAT BECAME OF P. BENSON AFTER HE SAWED OFF THAT LIMB?

Papa has bees, and I help him some. Last week a swarm came out and settled on a limb of a tall oak, near the top. Papa took a hoop off a nail-keg, sewed a sack around it, and fastened it to a long lath. He got under them on a limb, held it under the swarm, and rubbed it until the most of the bees fell into the sack, when he brought them down and hived them. Thomas has three calves. What do you think he has named them? P. Benson, Amos, and Huber. What became of P. Benson when he sawed the limb off between him and the tree?

ELLIE C. SMYLYE, age 8.

Caseyville, Miss., May, 1887.

Thank you, friend Ellie. Your father's arrangement for taking down swarms is almost exactly the same as that given in the A B C book, under the head of "Swarming." It answers very nicely, and has the advantage that it is light, and easy to hold out under the swarm.—I feel quite sure that P. Benson, "Amos," and Huber, will be not a little pleased to know that three *calves* have been named after them.—What became of P. Benson after he sawed that limb off, as shown on page 126? I am sorry to say he has never yet told us. Our artist took the picture of him when he was up in the tree, but was in such a hurry to get away (before the bees alighted) that he did not take time to wait for a second view—that is, of P. Benson, his swarm, limb, saw, and all, after they had settled on the ground.

DOES THE DIRECTION OF THE ENTRANCE HAVE ANY THING TO DO WITH ROBBING?

I am a bee-keeper and have good and bad bees—I mean those that sting. Bees have done well here. Some of our colonics face to the south and some to the east. This makes a difference, and papa says

that was the cause that two colonies got robbed. When we found it out the hives were full of bees, but all the stores were gone. Papa closed both hives for two weeks, and fed them; after that time one hive had brood in all stages, but the other one was queenless.

SOPHIE LOHE.

Island Station, Col.

I can hardly think, friend Sophie, that the mere direction in which the entrance may be pointing had any thing to do with the robbing you speak of. The entrances of several hives may be similarly situated, and be so near alike that bees will often become confused; but I hardly see how it could result in robbing. I am rather inclined to believe that the robbing of the two colonies was due to some other reason. If the bees are Italians, and the colony strong, with a good queen, and the entrances of moderate size, you need not fear that other bees will rob that colony.

WINTER LOSSES, REPORTED BY A LITTLE GIRL.

Papa had 20 swarms of bees last fall. He packed 18 of them in chaff and 2 in sawdust. He lost the two latter, and one that was fed late in the fall, and from which the chaff cushions were left off. The rest are gathering honey and pollen. People around here have not been very successful in wintering their bees. Mr. P. had 103 swarms, and lost about 70; Mr. A. had 19, and lost 1; Mr. W. had several swarms, and lost them all; Mr. F. and Mr. D. also lost all of theirs; Mr. S. had 4 swarms, chaff packed, and they all wintered nicely. One of papa's best swarms used to come out in all sorts of weather last winter. Once it came out when it was snowing, and at another time when it was only 5° above zero. We have 176 chickens, but the hawks carry some off every day. CLARA LINDSEY, age 11.

Harford, Susq. Co., Pa., May 7, 1887.

Friend Clara, I took your letter out first from among all the rest, because the writing is so clear and nice. It is really a pleasure to read the little letters that are written in a plain hand. It is true, you little folks do a great deal better than the big folks, as a rule; but still there is a chance, I think, for a great improvement in writing.—You have given us quite a little item in regard to the winter packing of bees. Your report would seem to indicate that sawdust is not always reliable for wintering bees.—The colony which you say flew out so much during unseasonable weather, I should judge had dysentery, so that they were uneasy.

A REPORT FROM LOOKOUT MOUNTAIN; INSECTS EATING BEES.

We take GLEANINGS, and like it very much. We have a small apiary. Bees have just begun to swarm. They are all pure Italians. There have not been many flowers for them to work on until lately, when the white clover came in. The red clover covers some fields, but I have not seen a single bee working on it. The azelias are in bloom, and the chestnut will soon be. The bees have been gathering honey-dew from the chestnut leaves. Until lately the bees would go down into the valley, load themselves, and fly up again. By the time they reached the top they would be so out of breath that they alighted on the edge of the precipices, and just panted. There is a rock on this mountain in Chicamauga Cliff, called Bee-Rock. In it lived about

a dozen swarms of bees. I think they must have been a swarm that had run away and settled there, and increased. There are a good many bee-trees on the mountain. Almost all of these bees are Italians. A large insect like a bumble-bee is the only enemy the bees have here. I saw one catching a bee. I caught it and put it under a glass with several bees, and it caught one, and then, seeing another trying to get out, it caught and held it while it was eating the other one. It makes a small hole in the bee's body, and sucks the inside out, leaving only the empty shell.

GEORGE LAWSON, age 13.

Lookout Mountain, Tenn.

Why, George, why don't you go and investigate that bee-rock, and find out what there is in it?—The insect you mention, is the *Asilus Missouriensis*, which has been frequently described in our text-books and journals.

WHAT TO DO WITH A FERTILE-WORKER COLONY.

My bees are all doing well now, except one colony which had two fertile workers but no queen. I killed the fertile workers, and am going to give them a queen-cell. They had queen-cells started.

In one of the hives where the drones were, the queen had quit laying, and looked slim, as if for flight. I think they will swarm soon. On the 17th of Feb., 1887, we had a hard wind storm that upset part of the hives. Some of the bees lay on the ground till the third day, and then the sun shone and warmed them up and they came to life and crawled into a hive. The thermometer registered 10 degrees above zero at 8 o'clock on the morning of the second day after the blow, and had been lower in the night, so you see bees are not always dead when you know they are.

I received the book you sent me for my letter, and was very much pleased with it. I am one year and one month over fifteen to-day, so I send five cents to pay for it. I don't believe in begging, anyhow.

CHARLIE STEWART.

Altona, Col., May, 1887.

Very good, friend Charlie; but I do not believe I am quite prepared to accept your statement, that bees are not always dead when you know they are. If the bees you mention lay on the ground three days while the thermometer registered as low as 10 above zero, it is certainly ahead of anything in all my experience in this matter; in fact, I do not think I ever knew bees to come to life after they had lain dormant from cold for as long a period as 3 days. If you caught and killed the fertile workers, you have done something more than most veteran bee-keepers can do. Are you *sure* that you killed the identical fertile workers? As a general thing, we can not distinguish them from any other bees, unless we can see them in the act of laying eggs in the cell. Putting a queen-cell into a fertile-worker colony might or might not cause the bees to raise a good laying queen. About the only sure way is to scatter the brood into several good colonies. I would give the fertile workers several frames of good brood and young hatching bees. You can then give them a queen-cell, or introduce a queen, and yet be tolerably sure that every thing will be well.

TOBACCO COLUMN.

TOBACCO, AND ITS EVIL EFFECTS. GOOD ADVICE FOR THE BOYS, FROM ONE OF THE MEDICAL PROFESSION.

FRIEND ROOT: I know there is more rejoicing over one sinner that repenteth, etc., but I'm weak in mental lore, and have much faith in an ounce of prevention. You will mistrust, by the dubious atmosphere about my person, that I am a "pill-peddler" by profession; but what has that to do with tobacco? Well, I want it to furnish a little weight to my testimony, and I want you to listen to me just the same as if I had been your old and respected family doctor for the last forty years, and had twice saved your great-grandmother from having the smallpox. But, to the point: I have seen many of the *evil* effects of tobacco, but never have seen any *good* to come of it. I will give some of its bad effects, as I have witnessed them: Palpitation of the heart is one of the most common; dizziness, weakness, trembling, and nervousness. I have seen some very severe cases of dyspepsia brought on by the use of tobacco, which were incurable until tobacco was discontinued. But the most deplorable effects which have been lately investigated by some of the ablest minds of the present age is over the mental faculties of the young. I am sure there is not a boy or young man, no matter how much he may boast of his superior qualifications of worthlessness or of evil doings, but that wants to be considered bright and intelligent. Here is just where the greatest evil of tobacco lies; and, what is more deplorable, that evil is latent. If it were rapid in its effects—if, I say, it knocked all the understanding out of a full grown boy in just thirteen minutes, and made him speechless until after he had taken a cold shower bath, it would be a very successful persuader; but, unfortunately, its action is slow. Its poison gradually steals a permanent position in the economy. It slowly but surely produces a sense of dullness, a languor, an indisposition in the mental faculties of a growing brain, a certain absent-mindedness, inability to remember proper names, dates, and time. The reason for this is because it retards nutrition by interfering with digestion, and its direct sedative action on the brain prevents normal action.

Of the different modes of using tobacco, chewing is the most objectionable, because more enters the system. Cigar smoking comes next; and the least objectionable is a clean clay pipe. But it makes me nervous to think of a compromise. I would by all means insist upon an "unconditional surrender."

Young man, if your mind is not fully matured; if you are not 25 or 30 years old, or if you have not yet taken possession of all the knowledge you care to possess, or if you don't want to forget all you have learned; if you want to be considered bright, active, quick-witted, and the equal or superior of your associates in mental discipline; if you want to be in good health, and have a sweet breath and a clean heart, stop the use of tobacco; for, I repeat, it can do you no possible good, and may prove to make your life most wretched.

I am sorry to say I was once a tobacco-user myself; but after seeing so much of the evil effects of it, I have wisely concluded to stop—the smartest thing I was ever known to do in my life.

M. R. NICHOLS, M. D.

I have quit the use of tobacco. I have used it since I was 12 years old, but I never intend to use it again; and if you think I am entitled to a smoker, send it; and if I ever use tobacco again I will send you the price of the smoker. M. N. SNIDER.

Lafayette, Lafayette Co., La., Apr. 15, 1887.

I have used tobacco for about 20 years, but have given it up as a filthy habit. If your offer is open for this year, and you think I am entitled to a smoker, I shall be very thankful for it, and I promise to pay for it if I ever use tobacco again.

Peterboro, N. H., May 2, 1887. G. W. GILMORE.

I have never used tobacco except in smoking, to which I have been quite a slave for a number of years. I will say, if you send me one of your smokers I will quit the use of the weed; and I promise, if I ever take up the habit again, to pay you for it.

Salineville, O., Apr. 25, 1887. J. W. MANNING.

Accept my thanks for the promptness of GLEANINGS, and for its teachings, for it has taught me the evil of tobacco, and encouraged me to quit its use. I have quit for good; and if I am entitled to a smoker, please send it; and if I ever use the weed again I will pay for the smoker. D. D. SLATER.

Blackville, Barnwell Co., S. C., Mar. 30, 1887.

I am one of your boys who will never use tobacco. I always used it to smoke the bees out of the boxes, but will never use tobacco again. I would never have started to using the weed if it had not been for my bees. If I ever commence the use of tobacco again I will pay you double for the smoker.

Wall Rose, Pa., Apr. 30, 1887. CHARLIE HERR.

I am very much pleased with the way you handle the tobacco question in GLEANINGS. I am one who has reformed. I used it for 13 years, and quit about 5 years ago. I have become more and more set against it every year, and I fully believe the day will come when it will be looked on and dealt with the same as whisky. S. H. BEAVER.

Tamora, Neb., Apr. 30, 1887.

I have given up the use of tobacco, and should like you to send me a smoker. I don't want to be paid for doing right, for I am now 2d vice-president of a missionary society, and expect to do right; but I want to know that I shall have a smoker to pay for if I break said pledge. It will always remind me of my promise. R. S. PARHAM, JR.

Stinson, Ga., April 19, 1887.

HEALTH IS BETTER.

I have quit the use of tobacco; and if you will send me a smoker, and I commence using the weed again, I will pay you full value for the smoker. My health is better than it was when I used the weed. I am interested in the bee-business. Our bees are doing as well as could be expected at this time of year. C. P. HUTCHINS.

Massena, St. Law. Co., N. Y., May 4, 1887.

By request of two of my neighbors who have decided to lay aside the expensive and filthy habit of using tobacco, I ask a smoker sent them, if you think them entitled or worthy. Please direct to A. Spraggin, De Soto, Floyd Co., Ga., and J. F. Long, Coosa, Floyd Co., Ga., and the smokers will be thankfully received. The parties promise to pay you if they should be so unfortunate as to return to tobacco. D. B. BRYAN.

De Soto, Floyd Co., Ga., May 5, 1887.

A PROMISE FROM A WOMAN.

I like GLEANINGS very much, and intend subscribing for it. I am just beginning with bees this spring, and wish to learn all the improved methods of handling them. If you will send me a smoker I will never use tobacco again in any form. If I should break my promise my husband would be sure to let you know it, and pay you for the smoker, for he is very much opposed to my using tobacco.

MRS. LILLIE CHARROCK.

Rising Fawn, Dade Co., Ga., May 4, 1887.

WHY WILL YOUNG MEN NOT TAKE WARNING?

Please send J. J. Gilbert a smoker. He quit the use of tobacco the 14th of Dec., 1886. He commenced using it when he was ten years old, and is now fifty. If he commences to chew or smoke again he agrees to pay one dollar for the smoker. I know of five old men in this neighborhood who have quit in the last six or seven years. Why is it that the young will not take warning? May God bless you in your efforts to do good. H. FREED.

New Stark, Hancock Co., O., Apr. 27, 1887.

NERVES AFFECTED.

I got neighbor Beckwith's GLEANINGS, and in perusing it I saw that you were giving all those who would quit the use of tobacco a smoker. I have quit the use of the vile weed. As to chewing tobacco, I never expect to do it any more, whether I get a smoker or not, and if ever you hear of my using it I will give you ten times the worth of the smoker. I would advise everybody to quit. I chewed until every nerve in me was affected, so that when I laid down at night I would jerk all over. Smithville, Tenn., May 2, 1887. A. B. CHEATHAM.

THE ALABASTER BOX OF HUMAN SYMPATHY.

There came unto him a woman having an alabaster box of very precious ointment, and poured it on his head, as he sat at meat.—MATT. 26:7.

Our alabaster box of love
And tenderness kept sealed
Until by death friends are removed,
These sorrows won't be healed,
But if, while they have ears to hear,
We often then may save
From many a pang and briny tear,
Too late when in the grave.
The kind things that you mean to say,
And acts you mean to do,
Say now before they're gone away,
And do before they go.
The flowers you mean to send their bier,
In life on them bestow;
They will appreciate them here,
But can not when they go.
Christ's followers called it heterodox
When Mary, with good sense,
Poured out her alabaster box.
Though worth three hundred pence.
If friends have boxes laid away
To break upon my head,
I'd have them broke while here I stay,
And not when I am dead.
I'd rather they would bring them out,
Or strew my path with flowers
While I'm beset with fears and doubts,
In these my weary hours.
I'd rather have a coffin plain,
Without a eulogy,
Than life without the sweets and gain
Of love and sympathy.
Let's learn to anoint our dearest friends
Before their burial day;
Post-mortem kindness does not tend
To cheer the spirit's way.
The fragrance of the flowers may last,
Fragrance on coffins may;
But never can it backward cast
Over the weary way.
To all who cease to smoke, still make
A gift to smoke the bee-sucks;
And thus continue still to break
Your alabaster box.

H. L.

OUR HOMES.

Thou shalt have no other gods before me.—
Ex. 20:3.

MY wife reminds me that she fears I am getting to write the same thing over to you in these Home Papers; to which charge I plead guilty, but offer, as a reason, that God's truths need repeating over and over again. As for myself, I have great cause to feel that I need line upon line, precept upon precept; and sometimes I feel almost discouraged to think I have to go over the same ground again, and fight the same battles over again, that I have been fighting in the Christian warfare for these years that are past. As I grow older, temptations of a different character present themselves to me, to some extent; but at the same time it is the old, old story—the conflict with sin—with inborn sin—with sins that are possessed in every human heart; and one of my greatest conflicts just now is to hold fast to that first and greatest commandment at the head of our talk to-day—"Thou shalt have no other gods before me." I used to laugh at the idea of the heathen bowing down to images of wood and stone; but now I feel more like bowing my head in shame and sorrow, because, as it often seems to me, I am but little better than they; and considering the light that surrounds us now, and the opportunities that were before them in those dark ages, I do not know but I need more of Christ's grace than they did. What did God mean when he gave this as the first and greatest commandment? Jesus makes the matter plainer, especially to us of the present day, when he says:

Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy mind.—MATTHEW 22:37.

He further adds: "This is the first and great commandment." The reason why this is the first and great commandment is, that it covers all the rest substantially. The man who loves God, loves his fellow-man; and the man who loves his fellow-man as himself, will surely be in no danger of wronging his fellow-man, for he will take more pleasure in seeing him happy than in being happy himself.

This truth, like other scriptural truths, seems easy and simple enough in the abstract. We may hear it from the pulpit, and may nod our heads approvingly, and we may lament that all mankind do not see it as we do; but, alas! alas! when it comes to putting it into practice in every-day life, the depravity and deceitfulness of the human heart become painfully apparent. My friends, I do not feel like speaking of the sins of others when I take up this text to-day, therefore I want to say, when I start out to live this text, and try to make God's righteousness foremost, it is with great sadness that I contemplate the depravity of my own heart. At every turn I see selfishness taking the place of God. I see all sorts of things belonging to this world threatening to take the place in which God alone

should stand. In my plans for giving employment to my fellow-men, wherein I have found so much enjoyment, even there I find plans creeping in for my own up-building—for my own—shall I say my own honor and glory? I have been fondly thinking for some years past, that I had got over all ambitious plans and feelings; I have been fondly hoping I was truly content to labor and to put self aside—keeping out of the way or out of sight as far as possible—not caring to be mentioned; not caring for praise, but preferring, rather, in the language of the closing words of the Lord's prayer, "*Thine* is the kingdom, and the power, and the glory for ever."

I know by past experience that there is no comfort nor real substantial satisfaction in the praise of the world; I know by past experience that there is no real enjoyment in anything the world has to offer, where I can not take God along with me; but for all that, there are continual longings—there is a continual grasping after things that I know are not wisest and best. These conflicts are out of sight of the world, or, at least, I take care that they do not result in open action, and yet the world judges pretty fairly after all. There is nothing so deceptive in this world as sin itself. I know by past experience there is no comfort or satisfaction in transgressing any of the ten commandments, even in thought. It was Jesus, remember, who suggested that we could transgress in thought if not in deed. I have tasted of the pleasures of a sense of God's love and of his approval. Then why should I for one instant contemplate swapping these for any thing that this world has to offer? I know by experience that David spoke the truth when he said, "If I cherish iniquity in my heart, God will not hear me;" yet for all that, almost day after day I voluntarily and of my own free will grieve the presence of the Holy Spirit, and drive it away. Why, oh why, should I do this? At such times it is a comfort to me to read the words of Paul—words which I feel sure were uttered under circumstances at least somewhat similar. Just think of saint Paul himself, who was more devoted to the kingdom of God and his righteousness than any man who lived before, perhaps, or since, saying of himself, "For the good that I would, I do not; but the evil which I would not, that I do." And further on he says, "Oh wretched man that I am! who shall deliver me from the body of this death?" Over and over again, of late, I have been off by myself, and breathed out this little verse, and somehow peace and quietness have always come from it afterward. Some invisible presence has seemed to say, "There, there, child, that is enough. Be careful to remember how weak and imperfect and erring you are. My grace is sufficient for thee." And then come the words of that wonderful little hymn,

Just as I am, without one plea,
But that thy blood was shed for me.

One of my great trials is to keep humble—to forbear using the authority which I might use if I choose. At the noon service some

time ago, I spoke to the hands, in a little talk, about authority. I told them that it was my prayer that I might be able to keep the authority that was invested in me, entirely out of sight. I told them I wanted to move around among them as a fellow-laborer, a companion, and a friend; that I prayed God I might be able to keep out of sight and out of mind the fact that I was employer, or "boss," as it is so often termed; and I asked them, too, that those who have charge of rooms, and those who have help employed under them, would try to do the same—try to so manage that it should never be necessary to say, in a peremptory way, "Do this," or, "Do that." It is an easy thing for me to speak to my boys out on the grounds, when I wish them to take up some other work, something in this way: "Boys, will you please let this drop that you are doing now, and come with me?" or, "I think, boys, I wouldn't do this work the way you are doing, but like this." Now, I know by experience how much better this way answers; and I know by experience that cases are very rare where one we employ disobeys, if we explain to him exactly what is wanted of him; but for all that, past experience seems to amount to nothing. All these years of practicing and experimenting and studying upon the way that God's commandments work in the hearts of men seem to count for nothing. Every few days I find myself away off the track—away out of the straight and narrow path. In place of the pleasant good-natured child of God who used to stand in my shoes (if you will pardon the expression), my better self has gone out, and a usurper has come in. A man stands there whom I shudder to think of or look at. He is selfish and cold and unfeeling, and domineering. He has no care nor respect for God nor for God's commands. His god is self, and he cares nothing for consequences. If you tell him a certain act is wicked, he says, "Who cares if it is? If you don't want to get hurt, get out of my way." His heart is in the right attitude to utter oaths and curses; he has no love for his fellow-man; he has no respect for—do you shudder, dear reader, at such a picture? and do you say that that is the effect of overwork and a disordered imagination? Alas! it is but too true; and those who have been striving to follow Christ may recognize the picture from its semblance to similar glimpses they may have had of their own hearts. Without the Savior's love—without the grace of God in my heart, I should have been a fearful specimen of humanity. I have sometimes looked in wonder upon the friends and neighbors about me. I have even looked upon unbelievers—those who have never made any profession whatever, and I have firmly decided that none of them have had even a glimpse of the way in which Satan has tried to get hold of me. I can not believe it possible that others have ever been tempted as I have been, and yet I do not know. Each heart has its own secrets, and only God knows how many a poor wretch has breathed the prayer, "God have mercy on me a sinner." I have sometimes wondered—yes, even lately I have wondered

whether the dear Savior had any place in heaven for such as I. I have wondered whether he could make any use of one whose heart has been so full of wicked thoughts and depravity, and yet I am not sure the fault is altogether mine, for I often think of the illustration in *Pilgrim's Progress*, where the evil one whispered evil suggestions over Christian's shoulder, and then persuaded him they came from his own heart. At such times I turn with wonderful comfort to the saying that Christ Jesus came into the world to save sinners. If being a sinner is one of the qualifications to entitle one to Christ's regard or love, surely he came to save me; and when I wonder if it be possible that such a heart as mine may be really and truly cleansed, and be made fit for the courts above, then I remember the text, "The blood of Jesus Christ cleanseth us from all sin." Jesus told Peter that Satan desired to sift him as wheat, and I have wondered whether Satan hadn't decided that his best time to open up on me with all his artillery was just about now, when I am getting to be nearly fifty years of age. May be he has been sifting me, and perhaps he will, after awhile, go away. But I do not want him to go and torment somebody else as he has tormented me; in fact, if I thought he had got to busy himself tormenting somebody, I think I would try to bear it; for I have Christ by my side to strengthen and comfort me, and some other poor soul may not have. There is a little verse in our hymns that reads:

Tempted and tried!
Oh, the terrible tide
May be raging and deep, may be wrathful and wide!
Yet its fury is vain,
For the Lord shall restrain,
And for ever and ever Jehovah shall reign.

There is one other thing I wish to speak of, and yet I dislike to, for the reason that only a part of the friends may understand me; but I will try to make it plain. Some of you may imagine that much property would make you happy; you may think that having money to buy whatever you may want would surely enable you to be peaceful and happy all the day long. Some of you may think, who have struggled long years with debt, that great happiness would surely be the result of having a balance ahead in the bank. Some of you have hard work to get along on your farms and keep things in order, as you would like to have them, and think it would add to your enjoyment of this world to have plenty of help to do every thing you feel you would like to do. Others may have thought that a successful man must certainly be a happy one—that one whose plans, inventions, and projects all turn out to be prosperous and successful would be the one who could give praise to God from the bottom of his heart, day after day. I want to tell you, my friends, that you are mistaken. It is true, that when we have worked hard for the accomplishment of some object, a sense of happiness and of God's approval comes to us after the toil and the hardship are over, providing, of course, the work be a praiseworthy one; but money of *itself* does not

bring happiness, neither does property, nor having plenty of help and plenty of money to pay your help promptly. On the contrary, these things bring trials that many know nothing of. I have sometimes thought Satan seemed to take it for granted that plenty of money would spoil the best Christian, and that his best chance was to lay siege to the Christian who had been prospered in this world's goods. Some of you may have thought it would be nice to have people to do your work for you. My friend, when you have once had the burden on your shoulders, of keeping one hundred or more men at work, and at work in a way that will be profitable to you and to themselves, you may change your mind about it. It may be nice and pleasant for a while; but when the novelty wears off, and when you find that you are harnessed up, and that your time is not your own, and that your brains, your muscles, and your surplus energy, are not your own, you may pine for freedom.

Now, I do not complain of my lot in life; I do not mean to complain of the work whereunto God has called me. At first thought I might say, if Satan would just let me alone, and take his fingers off from me entirely, then I should be satisfied; but if God has, in his infinite wisdom, seen fit to test and try me, perhaps in a very small measure as he did his servant Job, then I hope I am willing to say, "Amen; thy will, not mine, be done."

It may be a simple matter to some Christians to keep in heart as well as deed this first commandment—"Thou shalt have no other gods before me;" but it has not been by any means an easy task for me to keep this command as I think it ought to be kept. The question may be asked, "How shall we know when we are letting any of the things of this world get where they are in danger of coming before God?" My test is this: Whenever any thing takes so much of my thought and time that it seems to stand between me and God, I feel I am surely in danger of breaking the first commandment. Whenever you are so absorbed in business, pleasure, or in laying plans for this world, that you are forgetting your Maker, and seem to be getting away from him, then are you in danger. The sense of this danger seems to be more acute with me when the time comes for me to write these Home Papers. When the printers inform me that they are ready for Our Homes, then comes a test of my spirituality. If I have been getting off the track, my faith and love toward God seem to be dull and cold. At such times I often feel myself totally unfit for any such sacred office as ministering to those who are hungering for the bread of life; and woe betide me if any thing that has happened dims my sense of the presence of God's love in my heart. Sometimes these things that seem to come between my mental vision and God come in such strange and unexpected ways—in such guise, as it were, that I fail to detect the presence of Satan, until I begin to feel my spirituality gone. Sometimes a disposition takes hold of me to have my own way, no matter what may be

the consequences. Again, Satan whispers that I can not help myself; the tide of affairs is sweeping me along without my being to blame at all. At another time the things of this world that come between me and God's love seem to be too great for all my strength. Even going off by myself does not always seem to answer. They get between me and God, even while on bended knees. I will now tell you how I have triumphed over Satan in such cases.

You have perhaps noticed a child that had got his temper up, and it seemed almost impossible to conquer it. May be you have seen a boy in school who behaved as if he would die rather than give up; or two men engaged in a lawsuit. They seem determined to lose all the property they have, in a contest that is insignificant. Well, a good many times there is wisdom in *dodging* such issues. I think there is wisdom in the parent who evades the necessity of stirring up a child's stubbornness and evil temper; the same with the boy in school, and the same with a neighbor. May be you think it strange that I should talk about dodging Satan. Well, I have dodged him a good many times, and I will tell you how I do it. He plants himself right before me. If I stop and look at him, or argue the case, it seems as if he comes out best—at least I never get ahead of him in that way. If I go off by myself to pray, *if I don't look out* he is before me, even there. Now, then, *how* shall we dodge him? Why, my good friends, if you are ever in such a predicament, just use your plain common sense. Pick up a hoe and go out into the field and hoe potatoes until you are tired and hungry; or, better still, busy your mind and body in something that will do somebody some good, and *keep busy*.* Raise potatoes if nothing else offers. Put your heart and soul into it, and, before you know it, God's love will come into your heart again, and you will feel the approving voice, "Well done, thou good and faithful servant." To tell the truth, that is just where I stand this morning. I tried facing Satan, and did not make any headway. I left him, and, naturally enough, when I got busy with mind and body, in some *good* work, I had soon forgotten all about him, and was surprised when I discovered that he was gone. At such times a peace comes into my mind that I can not exactly describe. It is the peace that God gives to every one who has dropped and abandoned folly, and chosen wisdom—to one who, by his acts in life, as well as by words, has declared he has no other god in the wide universe than the one true God who created the heavens and the earth. To him he is loyal, honest, and true. In the Gospel Hymns is a verse composed from the text, "He said

* When Moody was in Cleveland some years ago, some leading skeptics and infidels wanted to discuss the matter with him. They challenged him to meet them and argue the case. He refused to argue or discuss with them. When somebody protested against such a course, and asked an explanation, he replied, "My friends, I have no time." And he was right. The man who is doing good to his fellow-men in the way that Moody was and is, *has* no time to discuss theology, and a great many times we waste our time, and get ourselves into trouble, by attempting to discuss or dally with Satan.

unto her, Thy sins are forgiven," as found in the seventh chapter of Luke. The last verse of the hymn describes the reward God gives to those who have put the world behind them, and who have triumphed over Satan, and stand before him true and loyal, with the first commandment given from Sinai. The verse is this:

In the sky, after tempest, as shineth the bow,—
In the glance of the sunbeam, as melteth the snow,
He looked on that lost one; "hersins were forgiven."
And the sinner went forth in the beauty of heav'n.

WINTERING BEES IN A CYCLONE- HOUSE.

A BEGINNER'S EXPERIENCE.

I PURCHASED 10 nucleus swarms from Oliver Foster, some hives from A. J. Root, and started in the bee-business. We had a very dry season—no rain for 3 months, from June 1st, but the bees managed to fill the brood-chamber all right, and made 200 lbs. in the section boxes. This I took for my share and gave them the rest. As soon as cold set in I carried them into a cyclone-house, built all under ground, with a roof of dirt four feet thick, with a stovepipe in the center, for a vent. The cave, or cellar, was very damp, so I screwed some narrow strips of board on the side of the hives, near the cover. The strips were six inches longer at each end than the hive, making the hives look something like a box for carrying coal in. Then I made racks along each side of the house and hung my bees up by the handles on their hives; but I first took them out of the portico hive and put them in the upper story so as to avoid a permanent bottom-board. I then made a bottom-board by putting on screen, such as we use on our doors, and in the same way, and hung it on the bottom of the hive with hooks, so the bees could not come out, but so one could take it off while they were asleep, turn it over, and hook it on again, or jar off any dead bees or any other litter, and give them plenty of air. After that I took some old newspapers and spread one of the four sheets over the hive, then put the cover on tight, letting the paper extend outside all around. Thus I shut off the air above, knowing that too much air might give them a sore throat. Then I thought if, after going to all that trouble, they wanted to die they would certainly be very ungrateful. But they did not die. I looked at them as often as once a month, and always found them dry, and clustering up next the paper, and all over the frames. However, I found considerable moisture in the top of the cover. This I threw off, generally, so I put a little block under the paper to raise it in the center and allow the moisture to run out under the cover, in case it fell back on the paper. Sometimes the little busybodies ate through the paper, in which case I just spread another over that one.

I carried them out as soon as maples blossomed, and put them into the porticos again. They had honey enough to have wintered again, so I let them keep it. Up to date two have cast off swarms, and all are doing as well as could be expected, since the drought is on us again, and on to stay, according to all appearances. The temperature of that cyclone-house ranged from 36 to 40°. Now you know how a greenhorn winters bees.

ED. PARKER.

Union, Iowa, May 23, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

FOUL BROOD.

SINCE our last report, foul brood seems to have gotten under way in every portion of the home apiary. We have been treating sometimes as many as five or six colonies daily. To-day, June 10, the boys have found a dozen cases of foul brood, and this afternoon we are going to treat them—by complete extermination as at first? oh, no! We shall employ the starvation method, or perhaps, more exactly, a modification of it. As we have been experimenting upon the cases developed in the last few days, and have not as yet arrived at any definite conclusion, I will not give the exact *modus operandi*. Suffice it to say, we have now had 40 cases of foul brood in the last three or four weeks. But, more anon.

THE DOOLITTLE QUEEN-CELL PROTECTOR.

During this spring and summer we have been giving the Doolittle queen-cell protector a pretty thorough trial. All the cells we have raised this season were placed in the wire protectors before insertion in the hive; but for some reason or other we have not met with very good success. Mr. Spafford showed me some of the cells which had been gnawed into. Upon inquiry I found he had not pushed the apex of the cells into the apex of the wire cone, and the bees had, in consequence, crawled into the mouth of the protector, and so gained access to the sides of the cell. I then told Mr. S., hereafter to push the apex of the cell down in such a way as to close the mouth of the queen-cell protector. He then obtained somewhat better results. But even then cells would be found with the capping torn off, with the young queen within not fully mature.

I feel pretty sure that Mr. Doolittle obtains better results than we have so far. It is possible that the manner in which we construct the protectors makes a difference. We sent a sample to Mr. Doolittle when we first made them, and he pronounced them all right. Perhaps there is some trouble from the way in which we manipulate the cells in the hive. At any rate, we should be glad to be shown where the trouble lies.

CONSIGNMENT OF IMPORTED QUEENS; TWENTY-FIVE QUEENS RECEIVED,

AND NOT ONE DEAD.

Shortly after our last issue was out, we received a consignment of 25 imported queens from Italy. Upon opening the boxes we found that every queen was alive and hearty. Not only that, but the queens were unusually nice ones. I do not remember to have seen as nice a lot. One was sent off as soon as it arrived, and the remaining 24 were introduced successfully, as usual, in the

PEET CAGE.

If there is such a thing as "absolute and unvarying success" in bee culture, the Peet cage, in our own apiary, has come as near reaching this high standard as any thing we have ever tried. When we found that

all the imported queens were alive, I felt morally certain that every one of the said queens would be introduced successfully in the hives. We gave Neighbor H. ten to take to his apiary, sent one away, and the remaining 14 we introduced in the Swamp Apiary. Both the queens which Neighbor H. took, and those which we reserved, were introduced with entire success. In order to make room for some of the imported queens which we introduced we were obliged to cage the queens where we had just taken out a queen to fill an order. That is, we took the old queen out, and at the same operation caged an imported one in her place. In one or two cases the imported was out and laying in twelve hours from the time the former queen was removed.

After the 14 queens were all caged on the combs, I told the boys not to release them, and, as far as possible, to let them entirely alone; if, in opening a hive, they discovered that the queen seemed weakly, and liable not to live much longer in confinement (which I thought was hardly probable), they might then release her.

I believe a large part of the losses occurring from introducing by the Peet process is, that beginners become unduly anxious for the queen. If she is not out in 24 hours, they think they must release her. This fussing, opening the hive, and pulling off the cage, is liable to cause the bees to ball the queen. If the beginner let the Peet cage do the work itself, he will be vastly more sure of success, providing the cage has been placed over a few cells of honey, and on good old hard comb. I mentioned this fact in connection with the Peet cage, on page 1001, last year. Since that time two or three seem to rather doubt whether it were best to let the Peet cage shift for itself; but from almost constant experiments, year after year, I feel more satisfied than ever that it is far better to let the Peet cage do its work automatically. The two men we have in our apiary this season are beginners; but when they commenced work I gave them instructions something as above, on introducing queens. We introduced a large number of queens this spring, and, with the exception of one or two virgin queens they have not lost a single fertile queen. I have taken this occasion to reiterate these facts for the benefit of beginners, and to show how the best results may be obtained with the Peet cage.

THE HYDE APIARY.

Something over a week ago Mr. Spafford and I drove down to the Hyde apiary, put on the honey-boards, T supers, and, in fact, got every thing ready for a flow of comb honey. We aimed to put each colony, so far as possible, under different conditions, for the purpose of more accurately getting at results.

NO HONEY.

At the present writing, no honey has come in, and the bees have been for nearly a month on the point of starvation — barely sustaining themselves. If honey does not start pretty soon now, we shall not expect much from clover.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 15, 1887.

Work out your own salvation with fear and trembling.—
PHIL. 2:12.

WANTED, GLEANINGS FOR MARCH 1, 1887.

If mailed us at once we will allow 10 cents each for the above.

THE WHITE-CLOVER CROP AT THE PRESENT WRITING.

THERE seems to be a general complaint, that, while the bloom is most bountiful, very little honey is coming in. We presume this is on account of much rain. At such times clover usually yields bountifully just before its close; in fact, a few reports already state that white-clover honey is coming in bountifully. Much rain usually, for the time being, spoils the honey-flow.

MR. THOMAS HORN.

OUR friends will remember that Mr. Horn said, on page 319:

I am preparing the notes just as rapidly as possible, and will finish this evening so as to go out in to-morrow's mail.
THOS. HORN.

And again on page 408:

FRIEND ROOT:—I mailed, as promised, all notes excepting a few retained for further investigation, which I have since mailed; and now to the best of my knowledge all have their notes. If I have overlooked any, if they will kindly inform me I will mail them at once.
THOMAS HORN.

Now, we think it best to be slow to condemn; but when we tell our readers that complaints have been coming continually during several weeks past, saying that Mr. Horn has as yet sent no note at all, we feel very much inclined to think the time has come when forbearance ceases to be a virtue. May 31st we wrote Mr. Horn, asking him for an explanation; but up to the time of going to press, no word has been received. I may mention, also, that I have been severely censured for accepting his advertisement again, even though he did promise to give notes to all his customers. Perhaps some of the sufferers may become impatient at our way of doing business, but we hope they will be patient a little longer. And now, friends, since we have heard of so many who have *not* got their notes, will all of those who have received them please inform us at once by postal? We want to know exactly how many have received Mr. Horn's note in the way of settlement. It seems very plain and certain that Mr. Horn can give his notes for the amounts he is owing, if he has any disposition to be fair and honest. However, we think it best to wait a little, as the case stands.

BEESWAX, AND HOW TO SEND IT TO MARKET.

IN years past I have repeatedly cautioned the friends about sending heavy shipments of beeswax by express, for the reason that the express charges are sometimes almost equal to the value of the wax.

One friend away down south actually sent several cakes of beeswax by mail. The postage on the wax was 16 cts. per lb., as everybody knows, and was worth, when it got here, 22 cts. per lb., and so all he got for his wax was 6 cts. Now, if you send wax by express, especially where you live away off, it is pretty much the same way. Better sell it near home for what it will bring you, or wait until you have 100 lbs. or more to ship by freight. In fact, I can not imagine any excuse for sending beeswax by express at all. If you say you are owing us, and are anxious to pay the account, please remember we are never in so much of a hurry that we want anybody to pay express charges on beeswax. A great many times several neighbors can club together and thus get a cheap freight shipment. Another thing: If you *must* send small lots of wax, don't, we beg of you, go and put it in a great heavy box, but simply tie it up in a bag. A good strong phosphate-bag that can be bought for five cents almost anywhere is just as good as any thing else, and then you have no express or freight charges to pay on a box that is of no use when it gets here. You may think we are taking a good deal of space for so simple a matter. Dear friends, little packages of wax, with large express or freight charges, are coming to us on almost every train, and I hope we are just as anxious to save you expense as we are to save our own money.

DELAYS ON ORDERS DURING THE PAST MONTH.

THE season just closed has been the heaviest in the way of business ever known at the Home of the Honey-Bees. Notwithstanding the new factory put up last summer and fall, which we hoped would enable us to meet any possible demand for sections and bee-hives, we have been perhaps as badly behind as we ever were before. We are, however, as we go to press, nearly caught up. The only department that has been inadequate is the wood-working establishment—especially in the matter of sections. Some of the friends who waited until the months of May and June, and then sent in orders for odd-sized goods, were obliged to wait, some of them, for as much as two or three weeks. The reason for this is, when we are running full blast, with every saw going, we can make three or four thousand regular-sized sections where we could make one that requires us to stop and readjust the machinery. Under such circumstances it does not seem fair to make the friends who order regular goods suffer for those who order something irregular. There may be some who feel hard because we have not filled orders in regular rotation. We have before explained the difficulty in doing this strictly. One of you may order something that we have an abundance of in stock, while your neighbors order the very thing we are out of and can not furnish; and as most of the orders are made up of a variety of goods, a great many times an order is already to ship, with the exception of one thing, and this may be the state of affairs for a week. Sometimes it will answer to send a part of the goods at one time, and the rest at some future time; but as this makes additional charges we dare not often do this, unless the order is a large one. We are making preparations now to make up a stock of goods this fall, in order that we may not be in the same predicament another season; but very likely the result is, we shall have a great many things to keep over. Styles may change, goods made up may be superseded by

something better; but there is no other way that I know of to prevent these very annoying and perplexing delays. Now, we distinctly state in our price list, page 3, that we can not be responsible for delays in orders sent in during April, May, and June. We should like, however, to have those who have suffered by our lack of promptness to state briefly what amount will make the damage satisfactory. We do not think we should stand *all* the loss you are out of pocket thereby, for an extensive bee-keeper who waits until May or June before sending in his orders to a supply-dealer is certainly at least partly to blame. We wish, however, to have every thing arranged pleasantly, so far as it is in our power, before commencing another season's business.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

HAS received scores of unsolicited testimonials in regard to the excellency of his little book—

"THE PRODUCTION OF COMB HONEY,"

and it is with pleasure that he publishes the following selections:

Success to the little book, fresh and live ideas.—E. E. Hasty, Richards, O., March 28, 1887.

It is the best book on the production of comb honey I ever read.—F. W. Holmes, Coopersville, Mich., March 29, 1887.

I congratulate you on getting up such a complete treatise upon the subject in so small a book.—W. H. Shirley, Mill Grove, Mich., March 27, 1887.

Your little work on "The Production of Comb Honey" is a valuable acquisition, and coincides with my experience.—Dr. L. C. Whiting, East Saginaw, Mich., April 23, 1887.

It is simply at the head, in every respect, so far as it goes. All can say that there are larger books—those that cover more ground, but *none* that cover their ground nearly as well.—James Heddon, Dowsagiac, Mich., April 2, 1887.

You have given us a valuable work. Though terse, it lacks nothing in completeness. We need more such books—those that give facts in the fewest words.—For four years I have practiced essentially the system you give, and know its superior worth.—Dr. G. L. Tinker, New Philadelphia, Ohio, April 17, 1887.

Your book received last night and read through before I could sleep. To be sure, I knew the most of it from your articles in the bee-papers, but it is nice to have it all together in a neat little book like yours. You just more than boiled it down, didn't you?—Dr. A. B. Mason, Auburndale, O., Mar. 29, 1887.

Friend H.: Have just received your little book. Much that it contains will be found new, I think, with the *majority*. The cost in production must in some way be lessened. You set out the primary elements by which such lessening of cost may be made. I say heartily that I think your little book should be studied carefully by every producer of comb honey. With kind regards—J. E. Pond, Foxboro, Mass., March 28, 1887.

Your lovely little book gave sister and me much pleasure, and the author will please accept many thanks. Since criticism is invited, permit me to say that we reach the conclusion *too soon*. Had the book been less interesting we might not have discovered the fault—might even have thought it a *merit*—but since the book is as good as it is pretty, its brevity is a serious fault; a fault which will surely be amended in the second edition.

With the hope that it may everywhere receive the cordial welcome that it merits, I am yours truly—"Cyula Linswik."

Price of the book, **25 cents**. Stamps taken; either U. S. or Canadian. 10tdfb

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column,

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange for good horses and mules, 200 colonies of bees in Simplicity frames; also 40 acres of land adjoining the city. 20tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free. 4tfdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange Barnes foot-power saws and bees, for steam-engine, honey, or beeswax. 7-12db C. W. & A. H. K. BLOOD, Littleton, Mass.

WANTED.—To exchange English lop-ear rabbits, Guinea pigs, and water-spaniel dog pups for bees by the pound. F. GROSSMAN, 11tfdb Kamms, Cuyahoga Co., O.

WANTED.—To exchange 400 two-piece and 400 one-piece 5 $\frac{1}{4}$ x 6 $\frac{1}{4}$ V-groove secs., for 1000 4 $\frac{1}{4}$ x 4 $\frac{1}{4}$ Forncrook one-piece secs. (send sample); or for 5 purely mated Italian queens, daughters of imported mothers. J. M. YOUNG, Rock Bluffs, Neb. 11-12

WANTED.—To exchange my new catalogue of bees, queens, new section-case, for your address on a postal card. Address F. A. EATON, 11-12d Bluffton, Allen Co., O.

WANTED.—To exchange three city building lots, 25 x 102, in the city of St. Andrews Bay, Florida, for Italian bees, comb foundation, or any kind of apianian supplies. Titles to property are good. Address B. G. LUTTRELL, 12tfdb Luttrell, De Kalb Co., Ala.

WANTED.—An experienced apiarist wants permanent position, or to take off this season's honey crop. Southern States. H. HENRY, 12d Blandon, Pa.

WANTED.—To exchange Quinby hives and Simplicity one story, with 8 frames of drawn-out combs, for bees of any kind, or white paint. 12tfdb Mrs. OLIVER COLE, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange a "Star" bicycle for bees. Just the horse for a bee-keeper. 1213d Box 375. C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange Italian and hybrid bees in Simplicity hives for a first-class 50-inch bicycle. D. S. BASSETT, 12tfdb Farnumville, Wor. Co., Mass.

WANTED.—To exchange 40 lots (7 acres), situated 4 miles north of State House at Indianapolis, for land south or west. Good house and other buildings; ground set in fruits. Will trade for improved farm or lands well located. 12d JOHN CADWALLADER, North Indianapolis, Ind.

WANTED.—To exchange 16 American hives with frames and old combs, hives in good order and newly painted, for 3 good Italian swarms. 12d J. FERRIS PATTON, 163d St. and Morris Ave., New York, N. Y.

ESTABLISHED 1855. BEESWAX HEADQUARTERS.

We have constantly on hand a large stock of Domestic and Imported Beeswax in original shape, which we offer to manufacturers of Comb Foundation at lowest prices. We guarantee all our beeswax absolutely pure. Write to us for prices. Address **R. ECKERMANN & WILL,** Beeswax Bleachers & Refiners, 4-12b SYRACUSE, N. Y.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is often times quite an accommodation to those who can not afford higher-priced ones.

In Italianizing I often have albino and Italian queens that are mismatched, which I will sell at 20 cts. each. Blacks at 12 cts. each, when I have them.

J. F. HIXON, Sir Johns Run, Morgan Co., W. Va.

I have 12 more hybrid queens which I will send by return mail at 30 cents each, or 4 for \$1.00. Safe arrival and satisfaction guaranteed.

G. D. BLACK, Brandon, Buchanan Co., Iowa.

I have 10 hybrid queens, ready by return mail at 35 cents each. Satisfaction guaranteed.

MARKWOOD JERVISS, Maumee, Lucas Co., O.

I will sell black queens for 25 cents and hybrids for 40 cents, by return mail. Wings clipped, and raised in 1886.

GEO. L. FERRIS,
Five Corners, Cay. Co., N. Y.

BLACK AND HYBRID QUEENS FOR SALE.—Black, 25 cents; hybrid, 40 cents; mismatched, 45 cents.

W. G. HAYEN, Pleasant Mound, Ill.

I will pay 25 cents for 25, 50, or 75 hybrid queens, if sent to me in small lots during this month and the early part of July.

O. R. COE,
Windham, Greene Co., N. Y.

J. P. MOORE

Makes a specialty of rearing **Fine Warranted Italian Queens** from his choice strains of Italians, which is the result of 7 years careful breeding. Send for circular telling how they are reared, and see what his customers say. Prices, warranted queens, each \$1.00; per $\frac{1}{2}$ doz., \$5.00. Safe arrival and perfect satisfaction guaranteed. Address **J. P. MOORE, Morgan, Pendleton, Co., Ky.**

100 5-FRAME HIVES OF ITALIAN bees with young queen in light boxes, \$4.00; 2-frame nuclei with young queen, \$2.00; same 3-frame, \$2.75. Untested queens, 75 cents. 11tfdb **L. HEINE, Bellmore, Queens Co., N. Y.**

\$3.50 per M. for sections with the V groove, and smooth both sides. 12d **E. S. MILLER, Dryden, Mich.**

Comb Foundation. 10 lbs. or more, 30 and 40 cts., to close out present stock. Samples free. 400 lbs. warranted selected yellow beeswax, 25 cts.; also from 300 to 500 1st class brood and upper-story combs. For price, state kind and number wanted. 12d **H. L. GRAHAM, Grandview, Ia.**

THE CHANCE OF A LIFETIME.

A good 2-frame nucleus and young warranted queen for **only \$2.50. Just think of it.** And more! All ordering during June will receive next spring a present of 2 doz. of Ohio and Souhegan raspberry plants. No circulars. Order from this adv't. Write you name, P. O., Express Office, and County and State of each plainly. Safe arrival guaranteed. Will begin shipping June 25. First come, first served. **S. A. Dyke, Pomeroy, O.**

BY SENDING 30 CENTS

in stamps, you will get by first mail a **HANDSOME BOX** of note paper and envelopes **FOR LADIES** and containing new put up specially **Pen and Pencil.**

Address **GEORGE E. STEVENS,**
BOOKSELLER and STATIONER, CINCINNATI, OHIO.

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PURE ITALIAN BEES FOR SALE.

Two-frame nuclei, \$2.50; 3-frame, \$3.00. Full colony in A. I. Root's Simp. hive, \$5.00. Each nucleus and full colony to contain a tested Ital. queen and plenty of bees and brood, all on wired L. frs., combs drawn from fdn. Each of the above with a \$1.00 queen, 50c less. To be shipped in July. Safe arrival guaranteed. Address **N. A. KNAPP**, 13d Rochester, Lorain Co., Ohio, U. S. A.

CHEAP!

ITALIAN QUEENS, COLONIES, BEES BY THE LB., NUCLEI, AND COMB FOUNDATION.

Send for Circular.
Tftdb

JAS. McNEILL,
Hudson, N. Y.

2 Lbs. Bees With pure Italian queen, only \$2.00; with hybrid queen, \$1.75. Pure queen, \$1.00. Full colony in Simplicity hive, \$4.00. 1213d J. H. REED, Orleans, Orange Co., Ind.

Foundation-Mill For Sale.

We have on hand a 14-inch foundation-mill for making heavy foundation that was laid aside to give place to our power-mills. This mill is in excellent condition and makes very nice heavy brood foundation. The regular price of a 14-inch mill is \$40, but we will sell this for \$20.

A. I. ROOT, Medina, O.

A Barometer for Gardeners and Farmers.

We have finally succeeded in getting a wonderfully pretty little aneroid barometer that we can sell as low as \$2.50. One of them has been carefully tested by the side of our mercurial barometer, and it follows the rising and falling of the mercury with wonderful accuracy. It seems to me that these little instruments ought to pay for themselves over and over again for any farmer or gardener, or any person who is dependent on the vicissitudes of the weather. The instrument most resembles a pretty little clock, and it may be sent by mail safely for 10 cts. extra for postage. You will remember that my method of using any barometer is to pay little or no attention to where the indicator or mercury stands. When you wish to know what the weather will be, tap the instrument with the end of your finger. If the indicator (or mercury) falls, there is a prospect of rain; if it rises, you are pretty safe in deciding there will be no rain very soon. If a considerable storm is approaching, the mercury will keep falling for some hours, and it will drop a little every time you touch it, even though you tap it as often as once an hour. When it keeps dropping for several hours, look out for a storm or a big wind. If it keeps rising for several hours, go on with your work and you will very seldom be misled.

A. I. ROOT, Medina, O.

PURE ITALIAN QUEENS.

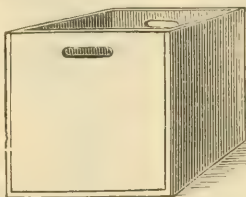
Tested queens, \$1.50 each; untested 75c. each; 3 for \$2.00. All bred from select imported mothers. By return mail, 100 2-frame nuclei with untested queen at \$2.00 each.
Httfbb **D. C. EDMISTON, ADRIAN, LEN. CO., MICH.**

MY 12TH ANNUAL PRICE LIST OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEUS COLONIES, and APIARIAN SUPPLIES, sent to all who send me their name and address.
9-11d **H. H. BROWN, Light Street, Col. Co., Pa.**

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tftdb

POTATO BOXES

(TERRY'S).



These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

A. I. ROOT, Medina, O.

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



This box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 30 cts.; \$1.00 per 100; or \$9.00 per 1000; 10,000, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

COMMON SENSE Automatic Door - Check.

SOMETHING THAT EVERY GOOD HOUSEWIFE
HAS BEEN LOOKING FOR.

Who has not felt the need of some simple and effective device for holding a door at any desired position? Many times you want to let in a very small amount of air, and it is difficult to fasten the door just where you want it. Many people use a couple of bricks, but these are unhandy, and ungainly looking things.

The accompanying cut shows the nicest thing for the purpose we have ever found. It is very simple, and yet very effective. It is attached to the corner of the door with four screws. You place your door just where you want it and press your toe on the upper end, pressing it hard against the floor. In the meantime the small dog catches it and holds it there and your door is securely fastened. When you want to release it to shut or open the door, simply touch your toe to the dog, and the spring inside presses the center bar up out of the way. The lower end has a rubber cap inserted so that it may be used on a carpeted floor, or even on a nice hard-finished floor, without injury.

If you try one you will want one for every door in your house. The price is only 35 cts.; by mail, postpaid, 45 cts.

A. I. ROOT, Medina, Ohio.

100 5-FRAME HIVES OF ITALIAN
bees with young queen in light boxes, \$4.00; 2-frame nuclei with young queen, \$2.00; same 3-frame, \$2.75. Untested queens, 75 cents. 11ftdb
L. HEINE, Bellmore, Queens Co., N. Y.

LOOK AT THIS!

My improved Smoker can be taken apart to clean it by turning a button. Lay the tube on the coals and let it burn out. The valve will come off in the same way to clean. Send \$1.00 for a Smoker and see how well you will like it. I will please you or return your money. I have tested it all of last season in my apiary of 79 hives, and it gave perfect satisfaction. If wanted by mail, add 25 cts. to pay postage. Address

W. H. SMITH,
9-16b BROOKTON, TOMPKINS CO., N. Y.

THE GILT EDGE APIARY

Offers Italian queens from imported mother, cheap. Write for terms and references. A. P. STAIR,
11ftdb Whitney, St. Clair Co., Ala.

WILL SELL tested queens at \$1.25 each; untested at 75 cts. each. Nuclei and full colonies for sale, either Italians or Syrians.
8ftdb ISRAEL GOOD, Sparta, Tenn.

BY SENDING 30 CENTS

in stamps, you will get by first mail a **HANDSOME BOX** of note paper and envelopes **FOR LADIES** and containing new pen and pencil.

Address **GEORGE E. STEVENS,**
BOOKSELLER AND STATIONER, CINCINNATI, OHIO.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 22ftdb

A. F. Stauffer & Co., Sterling, Ill.

Choice Italian Queens.

One untested, 75 cents; six, \$4.00; twelve, \$7.00. Tested, \$1.00, from natural swarming. 12-16db
Merican Stibbens, Oxford, Butler Co., O.

HEADQUARTERS IN ILLINOIS

For the Manufacture and Sale of

BEE-KEEPERS' SUPPLIES

8 and 10 frame Simplicity hives furnished at a great reduction in price. Nice sections and foundation specialties. A full line of supplies always on hand. Write for my new price list
12-15d F. M. ATWOOD, Rileyville, Ill.

HARRINGTON'S AD.

I have a fine lot of tested queens; will sell them in the month of May at July prices:

SELECT TESTED	- - - - -	\$3.00
TESTED	- - - - -	2.00
UNTESTED, After May 20	- - - - -	1.00

Holy Land and Albinos same price. If you wish something fine give me a call. I never had a case of foul brood. My two apiaries are located $3\frac{1}{2}$ north and 2 miles south respectively in a bee-line from the Home of the Honey-Bees. tftdb

H. B. HARRINGTON, Medina, Ohio.

For Sale!

16 H. P. UPRIGHT TUBULAR BOILER.
Complete, with heater, injector, steam and water gauges, etc. Price on board cars, \$250.00. 12ftdb
WATTS BROS., Murray, Clearfield Co., Pa.

BEES! 300 COLONIES ITALIANS.

Ready for spring delivery at 60c to \$1.00 per lb., according to time. Choice queens and brood cheaper in proportion. Also ADJUSTABLE HONEY-CASE, hives, and supplies. Circular free. 6ftdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Ia.

HOW TO RAISE COMB HONEY.

Price 5c. You need this pamphlet, and my free bee and supply circular. 18ftdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address
6ftdb HENRY ALLEY, Wenham, Mass.

ITALIAN QUEENS.

Breared from select mothers. Untested, \$1.00; Tested, \$2.00. H. G. FRAME,
5-16db North Manchester, Ind.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3bftdb



ARISE to say to the readers of GLEANINGS that

Doolittle

has concluded to sell
—BEES and QUEENS—
during **1887** at the
following prices:

One colony bees.....	\$ 7 00
Five " " " " " "	30 00
Ten " " " " " "	50 00
One untested queen	1 00
Three " " " " " "	2 00
1 untested queen reared by nat'l swarming	1 50
Three ditto " " " "	3 00
1 tested queen " " " "	2 00
3 " " " " " "	4 00
1 tested queen reared by natural swarming	3 00
3 ditto " " " " " "	6 00
Extra selected, 2 years old, each	4 00
100 Circular free, giving full particulars regard- ing the bees, and each class of queens.	10 00

Address **G. M. DOOLITTLE,**
BORODINO, Onton. Co., N. Y.

**DADANT'S FOUNDATION FACTORY, WHOLE-
SALE AND RETAIL.** See advertisement in
another column. 3btf

Stanley's Special Offer for July.

**A \$20.00 Stanley Automatic Extractor
For Only \$16.00.**

To those who will agree to exhibit my extractors at fairs and conventions the coming fall I will sell, during the month of July, a Stanley Automatic Extractor to take four standard L. frames, and warranted perfect in every way, for only \$16.00. This machine sold last season for \$21.00, and the present season for \$20.00; but I make this liberal offer to those who are willing to assist in the sale of machine. Do not think that this is a reduction in price, but only a special offer for one month. Every machine is made with baskets large enough to take sections if need be, and all late improvements will be attached with no extra charge. You do not need a circular to order from as this advertisement is my warrantee of the machine. If you do not use the L. frame, I shall be pleased to quote you reduced prices on any odd size of frame for the above-named time.

Do not ask for time on a machine, but inclose \$16.00 and send along your order.

Remit by P. O. money order; exp. money order; reg. letter, or N. Y. draft. If you send local check, add 25c.

G. W. STANLEY, Wyoming, N. Y.

GIVEN AWAY.

We will send free by mail one of our latest improved drone and queen traps to each yearly subscriber for the **AMERICAN APICULTURIST**. Price \$1.00 per annum. Sample copies free. Send the \$1.00 in common letter at our risk.

Address **AMERICAN APICULTURIST,**
7ftf Wenham, Mass.

LOOK HERE!

Hayen sells tested queens for \$1.25; untested, 75 cents. 2 frame, \$2.00; 3 frame, \$3.00; 4 frame, \$4.00. Full colony, \$6.00. Bees 75 cents per pound. All prepaid. Add queen you want to the above.
12ftdb **W. G. HAYEN, Pleasant Mound, Ill.**

FOLDING BOXES.

Our **Cartons** for enclosing **Section Honey** are the **best & lowest priced** in the market. Made in one piece. With or without **Tape Handles**. With **Mica** Fronts or without. In the **Flat** or set up. **Printed** or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. **Price List Free.** Samples **5c.**
14 oz. **Glass Jars \$5.25** per gross, including Corks & Labels. 11-2 & 2 gross in a Case. Catalogue of Honey Labels free.

A. O. CRAWFORD, S. Weymouth, Mass.

Fine Premium Italian Bees.

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PAINTING HIVES.

WHAT COLOR AND WHAT KIND OF PAINT SHALL
WE USE?

HAVING just finished painting a lot of bee-hives I thought a few words on the matter might be of interest to the readers of GLEANINGS. In days of box hives, arguments were used against painting hives, some of which were valid, and, to my knowledge, the painting of a hive which is closed bee-tight by wood, top and all, is a great disadvantage to the rapid breeding of bees in early spring. When I first began keeping bees I had six box hives, four of which were painted and two unpainted. I kept them three years, and the two unpainted ones always swarmed from a week to ten days in advance of the others. On all cool nights the moisture would come out at the entrance of the painted ones, so as to stand in drops of water in the morning; while the unpainted were as dry about the entrance as at mid-day. This caused me to decide against painting hives, so my first frame hives were not painted; but after I began to use bee-quilts, and chaff and sawdust cushions, I found that this did away with all the objections to paint, except its cost, for all the moisture arising from the bees readily passed off through the cushions, so the present finds me painting all of my hives.

WHY PAINT.

My reason for painting hives is, first, durability; and, secondly, looks. As to the looks part, no one, I think, will venture to say but that a well-painted hive is far more attractive to the eye than an unpainted one; but when it comes to durability, taken together with profitableness, some think it would be more profitable not to paint, and renew

the hive as often as is required. The reason for such a decision lies, I think, in the hives not being properly painted. Most of the painted hives which I have seen are not painted at the most essential points; namely, where the hive sits on the bottom-board, and where the cap, or cover, rests on the hives. All joints where the water can get in and find a lodging are the first places to decay, and need paint there much more than they do on the plain sides of the hive where the wet soon dries out. Properly painted, and kept so, a hive will last a lifetime.

WHAT COLOR TO PAINT.

After using nearly all colors on hives, I have come to the conclusion that white is the only satisfactory one to use, for two reasons; the first and greatest of which is, that the bees can be left standing in the sun the year round in hives so painted, and be comfortable, without the lifting and expense of shade-boards, with no danger of combs melting down; and, second, the right kind of white paint does not want renewing nearly so often by having the oil drawn out of it as do the colors. It is hard work to get any colored paint that will stay good over three years, while white lasts six, eight, and even ten years in very good condition. But for the overworked bee-keeper, the first is of the most importance. A man who can lift a 15 or 20 pound stone, a shade-board, and a cover, from each hive (replacing them in turn) all day, must have an iron constitution, and one which I believe could be more profitably employed, and might be, if, instead of thin boards, white paint were used.

WHAT PAINT TO USE.

Several years ago the editor of GLEANINGS recommended the Averill paint as the best for hives, while, if I am correct, he now recommends white

lead and oil as the best. Seeing his former recommendation I was induced to try the Averill, which gave good satisfaction, except that it sometimes cracked or peeled off. For a hard stonelike finish, to my mind no paint can equal the Averill outside white; but for sticking to a smooth surface, probably lead and linseed oil is equal to any thing, so for the past few years I have painted my hives by putting on two coats of lead and oil, and, after thoroughly dry, giving them a coat of Averill. This gives them a hard glassy finish, which will resist sun and rain for years, lasting fully twice as long as three coats of lead paint would do. How I came to use the Averill in this way was, that at one time I had to do with the property of others, the buildings of which had been painted every three years with lead and oil. This had so accumulated that the surface of the buildings was very rough; and the oil being driven out it washed with every driving rain so that the grass and ground would be white with lead. I thought to try Averill, giving only one coat, and the result was eight years of excellent service, and at the end of that time it was much better than the lead paint was after two years.

OBJECTIONS TO ALL WHITE.

The only objection to having the hives all of one color, and sitting in symmetrical shape, is the danger of bees mixing and of queens getting lost on returning from their wedding-flight. To overcome this I use a board in front of each hive, which answers the twofold purpose of keeping grass and weeds down, and by its position enables the bees of each hive to recognize their home. A day or two in the winter is pleasantly and profitably spent making (and cleating so they will not warp) these boards. If you wish them to look nice, paint them in colors.

G. M. DOOLITTLE.

Borodino, N. Y., June, 1887.

We have taken your article down to our painter. He agrees with you in the main in what you say, but says that he thinks the kind of paint we are now using, the lead and zinc, is equal to or better than two coats of white lead and the Averill over it. The Averill paint is going out of use almost altogether; whereas white lead, mixed with one-third zinc, is now in almost general use among painters. A few years ago, after discontinuing the use of the Averill, we came to the conclusion that white lead was the best; but our experience lately confirms us in saying that the addition of oxide of zinc makes the paint far more durable. It is with this that we are painting all our hives. It is possible, however, that two coats of white lead, covered with Averill paint, might be still more durable. Eight years of good service is about all we ought to expect; and I am not sure that the lead-and-zinc paint could equal it. We agree with you in what you say in regard to the use of white as a color. For many years we have had all our hives painted white, and we rarely have trouble with combs breaking down. In this connection, friend D., we should like to ask if painting the front of the hives in different colors makes any difference with the bees as to their ability to distinguish their own hive. We do know, that where the hives are all painted white, though similarly situated otherwise, causes more or less trouble from young queens get-

ting lost, and bees intermingling from one hive to another. We would refer you to what A. W. Osborn says in this connection, in another column.

DRAGON-FLIES OF THE SOUTH.

PROF. COOK ON THE DARNING-NEEDLE OF OUR CHILDHOOD DAYS.

THE large insects sent by Mr. W. J. Drumright, of Sarasota, Fla., of which he says, "These large mosquito-hawks came in such numbers as to nearly stop the bees from flying, just as the bloom was at its best. I send you two of the pests; can not you or Prof. Cook give us its name, history, and especially the duration of its winged state," are our largest dragon-flies, or darning-needles. In Europe such insects are called horse-stingers. Their scientific name is *Æshna heros*, Fab., or *Æ. constricta*, Say. They are too much broken to permit of identification. Surely they are objects of real beauty, as their shining green eyes, which form the major part of their big heads and the brilliant green stripes which mark the side of their thorax, can not but attract attention, and no one can fail to admire the graceful flight of these gems of the insect-world. These dragon-flies belong to the order *Neuroptera*, or nerve-winged insects, so named because of the intricate venation of their wings, making them to resemble lace, hence their common name as well, lace-wings.

All of these insects are predaceous—that is, they live upon other insects—and that in all stages; as larvæ, with no trace of wings; as pupæ, when the wings are short—mere pods—and as imago, when they are full fledged, and sexually perfect. While these large, active, four-winged insects are the terror of the insect-world, they are entirely harmless to higher animals; hence the English term of horse-stingers is entirely inappropriate; and the story which filled many of us American children with fear till we learned better, that these insects would, upon occasion, sew up our ears, is likewise entirely without foundation. These dragon-flies are really as harmless as a house-fly, and never harm any one. From their predaceous character these insects do very great good, as they destroy multitudes of our injurious insects. With the exception of two or three species of our largest ones, like *Æ. heros*, Fab.; *Æ. constricta*, Say., and *Anax junius*, Say., I have not any reports of any that destroy bees. Strangely enough, these species, though found all over our country, have been complained of only by Southern bee-keepers. I have heard of their doing quite serious mischief on different occasions in several of the Southern States. The larvæ are also very predaceous. They, however, live only in the water; and as they prey on aquatic insects they do us no harm. These larvæ are very curious in one or two respects. First, they have terrible jaws, which are masked by a dipper-like hinged kind of tongue. Thus they appear very harmless; but let a delicate mouthful in the shape of some water-maggot come along, and the mouth-cover is quickly unhinged and the morsel taken in. This curious mouth could not but interest any person who might take time to observe and study it. These larvæ are also peculiar in the position of their breathing-organs. These are in the rectum. Water is slowly drawn into this posterior end of the alimentary canal, which bathes

their gills, and thus furnishes the life-giving oxygen, and then is forced violently out, which sends the insect rapidly forward. Thus this arrangement serves both for respiration and locomotion.

The imago, or mature dragon-flies, live for weeks, and may be seen mating on the wing, and flying over water, depositing their eggs, either by gluing them to aquatic plants, or dropping them into the water.

There seems to be no way to protect against these savage marauders except to capture them by the use of a long-handled net. This has been practiced with considerable satisfaction in several Southern apiaries.

A. J. COOK.

Agricultural College, Mich., June 16, 1887.

DANIEL McFADDEN, AND HIS PLAN OF WINTERING BEES.

IS IT A HOAX?

FOR some weeks past I have been unable to give much attention to bee-literature. The death of a dear brother and sister, within less than a month of each other—the first break, so far as brothers and sisters are concerned, in a family circle of nine that has been unbroken for over sixty years, have been events that, with their attendant and consequent duties, have fully occupied both mind and time. On reading up the bee-journals awaiting perusal, I find, among other matters calculated to awaken the *cacoethes scribendi*, that extraordinary letter signed Daniel McFadden, which appeared in GLEANINGS for May 1. Not the letter itself merely, but the sub-heading and foot-note are extraordinary. The sub-heading announces, "W. F. Clarke's Hibernation Theory Established on a firm Basis." Now, I most emphatically demur to this. The letter does not affect my theory, or in any way whatever relate to it, nearly or remotely. It is hard for me not to think that, whoever prefixed that sub-heading, "A. I." or "E. R.," or somebody else about the office, must have known, quite as well as I do, that my theory is not involved in the absurd story about "wintering bees up toward the north pole without any stores whatever." It may have been meant as a joke at my expense, and GLEANINGS does appear to be getting somewhat jocose; witness the "P. Benson" letters; but I confess I do not like jokes that are cracked at the expense of truth and fact. Such jokes do harm. We have a conspicuous example of this in the Wiley joke about artificial comb manufacture. I have an abhorrence of lying, even in jest. What too many people are in the habit of calling "fooling" I honestly believe to be as truly telling lies as any other form of that crying and common sin.

But in view of the extraordinary foot-note, I am not sure that GLEANINGS regards the narrative as a hoax at all. It is discussed as though it were sober earnest, and matter of fact. I have read somewhere that the only way to get into a Scotchman's head the perception of a joke, is by the aid of a mallet and chisel; and I am inclined to think there are others besides Scotch people of whom that is true. You have written to George Watson; but although two issues of GLEANINGS have appeared since the McFadden letter was published, there appears to be no response. I doubt if there ever will be; and if there is, it is most likely it will come

from a fictitious party who is one of the ring of impostors which is trying to palm off a method of wintering on the bee-keeping public, which is "too-too" absurd and ridiculous for any thing.

I have never dreamed, and consequently never argued, that bees could be wintered in a "frozen stiff" condition, and "wholly without food." One of my articles on this subject was headed "Chilled Bees not Hibernating Bees," and I have invariably contended that bees, in order to sink into that state of repose which I believe to be essentially hibernation, must be in a temperature which makes them feel comfortable. Excess, either of cold or heat, breaks up the hibernating condition. The effect of extreme cold is first to rouse an abnormal activity, then to induce an enormous consumption of food, and finally to bring on diarrhea, which is fatal to the very existence of the colony.

A common mistake in discussing this matter is that of supposing that there is only one kind of hibernation. Of this, the bear is usually taken as the only admissible type or example. But the bear is not "frozen stiff;" and though he consumes no food in winter when in the hibernating state, there are stores of adipose matter packed away in his carcass, by drawing on which, life is sustained during his long sleep. Other hibernating creatures—squirrels for instance—do not sleep all winter long, but wake at intervals, take a good square meal, and then go to sleep again. We know that bees can not lay up stores of fat in their little bodies, like the bear, and that they must feed, at least semi-occasionally. In a thoroughly normal winter temperature, favorable to a snug and profound repose, bees consume very little honey; there is but slight waste of tissue, and they come out of winter quarters refreshed and rejuvenated by a long season of rest and quiet.

The foot-note says: "Bees have over and over again been wintered with so small an amount of stores, that more than one of the bee-friends have been almost persuaded that bees could live for months without any food at all; but yet all experiments made directly to prove this have somehow failed, and most of us have settled down to the belief with Professor Cook, that bees do not hibernate." There are some queer statements in this sentence, on which more light is needed. Who among the "bee-friends" ever became "almost persuaded" that "bees could live for months without any food at all"? I fail to recall one; but the foot-note asserts this of "more than one."

WM. F. CLARKE.

Guelph, Ont., Can., June 4, 1887.

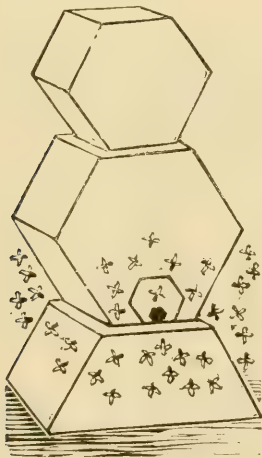
My good friend Clarke, we may have been thoughtless, and we may have taken liberties in speaking of your hibernation theory. If so, we beg pardon. But I am sure you are getting just a little uncharitable. George Watson's letter in this same issue, I think, shows it. Mr. Watson is certainly a good straightforward man, although he may be mistaken, like the rest of us. You will notice, by the date of his letter, that it was not published immediately on receipt, on account of the press of other matter. Friend C., it was myself who put on the heading, and who wrote the foot-note; and it was myself, also, who gave a report, years ago, in regard to a colony of bees that was wintered in the cellar with so very little stores

it seemed as if they must have lived for some weeks without any, comparatively. Accounts have been published in the same line, all through our journals, and many more could be picked up now if it were worth while to look into the matter. Doo-little has had something on this subject already, and perhaps he may enlighten us further. Perhaps we had better lay aside jokes, and ask in sober earnest how long chilled bees may be kept alive.

OUR P. BENSON LETTER.

HEXAGONY HIVE.

UP to the present time thair is (3) three strains of hives; the box hive, the Langstroth hive and the invertable hive. I hev now established a noo strain, whitch makes 4 (four). It is the Hexagony Hive. This is bound to sou-porseed all others, bekoz it is natcheral to bees to bild evry thing hexagony shape. A hexagony is a square with six sides, and that's the way the bees bild thair sells, so a hexagony hive looks natcheral to them and soots their ideah and will attract bees wharever it is poot. In fact, it will attract bees from other hives, as it will be seen in the pickter thay is more bees goin to the hive than is commin away. In this way the hive is always kep strong. Under the hive you see the base whitch is a hexagony cut in 2. On the top is a hexagony surplus department. This is filled with hexagony hunny boxes. A hexagony hunny box is filled sooner than enny other, bekoz it just fits the sells, and the bees will fill it a good eel sooner.



P. BENSON'S HEXAGONY HIVE.

In the summer of 18 hunderd and 86 I made the discuverry that by turnin a hive upside down the bees wood make just twicest as mutch hunny. You see when they find the hive upside down they think thev got in the rong hive, and if thay doant wurk twicet as hard thay think thay will git poot out. But the hexagony Hive ken be inverted on (6) six different sides, so thay think it's (6) six different hives and thay will poot in 6 times as mutch hunny.

Now sum buddy will go to wurk and git up a 8 square hive and think he ken git 8 times as mutch hunny, but heal be phooled. A 8 square hive izzent

natcheral, bees doant bild sells with 8 sides, and thay will see through the desepsbun.

Rites for the Hexagony Hive for sail. State rites is (5\$) five dollars apeace. This will entigtel the oaner to yuse the hive on his oan land enny whair in the State. If he moves into a different State heal hefto by another rite. But he mussent make enny hives. He ken by the hives of me at cost. Thay cost 5 dollars \$ apeace, whitch barely pays for the matearial and my time a makin of them. My time is middlin valyuable.

This hive is a invenshun whitch I am not asham-ed to go down to posterity.

P. Benson, A. B. Sighentist P. S. Mr. Root, what roilty wood you give for the excloosiv and sole rite to make, sell, and yuse the Hexagony Hive? This wood keep the thing so nobuddy else cood make or yuse them, and wood dirty mutch giv you a monop-pelly.

P. BENSON, A. B. S.

BLASTED HOPES.

WANTED—A PARTNER IN BLASTED HOPES;
SOMETHING ABOUT THE BEVELED EDGE.

BRO. ROOT:—You ask for reports discouraging. Well, here we come, complaining that our bees will not swarm, nor store any honey in the boxes above the brood-nest. I have seven colonies in Langstroth hives, ten frames, that have not cast a swarm in two years. Tell P. Benson to send me some of the seeds of that celebrated apple-tree of his. Now as to honey for the family, that is just a rarity. I sent to Jas. Heddon three years ago, and got 300 lbs. of his fine honey, and we lived fat while that lasted, but that has given out long ago. Tell Bro. I. R. Good, of Nappanee, Ind., to move down here to my house, and bring all of his bees with him. I want him and his bees. If he can't come, tell him to send me his bees any way. We are not overstocked here. I have a fine apple-orchard of 100 or more trees under which I can set our hives. I want a partner in the bee-business—a male partner—one who likes bees. I have a female partner for life in other things, but she don't like bees. She sometimes looks "bevel edged" at me, and says, "You had better put down those old bee-journals and get your Bible." Mine are all black bees, and they can sting too. I tried to divide a colony yesterday evening, and now my face is all swollen up. They came at me zip, zip, zip, and then I skip, skip, skip. Send me a male partner, or else put me in Blasted Hopes.

J. G. NANCE.

Bellevue, Ky., June 3, 1887.

Many thanks, friend N. We have heard of women looking sharply at their other half, but we never before heard of one looking "beveled edge" at him. The term, even if newly coined in the sense in which you use it, is full of meaning—at least to a bee-keeper. Now, then, where is the male partner who will offer himself to our friend?

ALL DEAD BUT TEN.

I packed last fall in Doolittle chaff hives, and according to his directions, 21 good colonies. May 11, 1887, all dead but two. As near as I can find out, two-thirds of the bees in Fond du Lac Co. are dead. Lamartine, Wis., May 11, 1887.

C. S. NASH.

TRANSFERRING WHEN BEES ARE IDLE.

A LITTLE ADVICE.

ON the 18th inst. I transferred a colony of bees at Langhorne, Pa. The weather was very warm, the bees were idle, and hanging out of their hives. First I set the old box hive on a piece of carpet and set a two-story Simplicity hive in its place. Next I opened the box hive, and the bees flew around me as if three or four colonies were swarming at once; then for the first time I used a bee-veil. It was very useful. The bees from 3 colonies flew so thick I could not see what I was doing. I used my smoker for a few minutes, which settled the bees I was transferring, but robbers then became more troublesome; and when I opened the old box hive they grew still more vicious. They clustered around the new hive as if they were swarming. For a time smoke would not check them; and after they were checked they would repeat as soon as the smoker was idle. I looked to see where they came from, and found many of them came from two adjoining hives, so I gave each of them a little smoke, which stopped the robbing. Not only honey-bees, but even bumble-bees made a visit to the box hive. They had a good share of the smoke too. The combs were soft, like dough. I could not help letting the honey run, because the combs were not tough enough to hold together. I managed to get the brood-comb in nicely, but the honey-comb was very hard to be made to stay in frames. I put what honey I did not transfer, into a wash-boiler. The robbers flew about the boiler, watching for a chance to pop in; and whenever I would open the boiler, a lot would rush in. The hive was small and had no place for hot air to escape. I suppose the cause of the combs being so soft was because the bees were packed inside and outside of the hive. The honey of this hive was the exact color of buckwheat. Can any apiarist tell what kind of honey it is? I could not find the queen. They were black bees. They bunched so much that it was impossible for any apiarist to find her. It took me three hours to transfer that one colony of bees. I will never transfer a hive again when bees are idle. I will wait until they commence working, and I advise all bee-keepers to do the same. I never have any trouble in transferring when bees are busy; but let them alone when they are idle, unless you have a bee-tent.

E. E. GRAY.

Yardley, Pa., May 24, 1887.

Friend G., I have been through just about such experiences as the one you mention, and I long ago decided that I never wanted to transfer any more bees when they were not working. The combs were softened, as you suggest, by the heat developed by the bees in that small close hive. I pity the man who gets into such a fix as you were.—Now a word about smoking bees to prevent robbing: Every time we get a new man at work in our apiary, I have quite a time to make him understand that he can not stop robbing by the use of smoke. When a colony is being robbed, the first thing to be done is to induce them to defend themselves; and how can they repel their assailants, or organize themselves for a good square fight, when smoke is being continually blown in

their eyes? A few days ago they had some trouble at the Swamp Apiary. Some bees just purchased were set in a warm place, and they began passing the honey through the wire-cloth frames over the top of the hives. Robbers soon came in great numbers and made desperate attempts to force the entrances of several hives that had just been located. One of the boys said he kept the robbers away by smoking them for half an hour, and then he was obliged to stop in order to replenish his smoker, and he had to go quite a little distance to get some rotten wood. I told him that I very much preferred he should have no smoker around when bees were robbing. If you can find the hives from which the robbers are coming, it will do very well to smoke them; but by no means smoke the bees that are being robbed. Make the hive tight, contract the entrance, shut up or get out of the way every bit of loose honey, and then get the besieged colony to defend themselves. Where robbers are hovering around the hive trying to get in, you will often start robbing right speedily by driving the sentinels of the hive back into their home, with a smoker.

A LETTER FROM OUR OLD FRIEND A. BUNKER.

He Reports Further in Regard to Apis Indica and Apis Dorsata.

HONEY FIFTY CENTS PER POUND.

FRIEND ROOT:—My long silence has not been caused by loss of interest in the great "bee-family" or the bees; but the many cares of a large mission, in time of war, have called for all our strength. Over a year ago the British army marched to Mandalay and easily dethroned King Theebaw, and thought the work of subjecting Burmah complete. But, how mistaken! During the last rains, where troops were shut up in towns near the large rivers, almost the whole Burmese fighting population in the interior formed themselves into bands, numbering each from ten to three thousand, fairly armed. This alarmed the authorities, and at the close of the rains troops were rapidly brought into the province, till the British forces of all arms here numbered fully 35,000 men. These troops were broken up into small bands also, and scattered all over the country to meet the many bands of dacoits, so called, now ravaging the country with pillage and fire. The larger bands were first attacked and broken up, and at this date the official bulletins announce the country as "pacified throughout its whole extent." This, however, is not apparent to those who dwell among the people. The country swarms with small bands of tens and fifties who move rapidly from point to point, and burn, kill, or rob, as they will, wherever they can do so without fear of English guns. The object of these marauding bands seems to be plunder, and they care not what destruction they work in securing it. Being great cowards, they seldom attack the English or the Karens, but they are terribly cruel where they have the power. The most cruel tortures are inflicted, even on their own countrymen, in order to force them to reveal their hidden hoards. The helpless of every age are

roasted before the fire, beaten with rods, pricked and cut with knives, covered with kerosene oil and set on fire—no words can describe the ferocious brutality of these idolaters.

The Karen Christians have been most loyal and helpful to the government, but the officials have been obliged to work with them largely through us missionaries, as we alone understand the Karens and their language. The Burmese have, of course, been especially hostile to the Karens, because of this loyalty, and in the first few months of the war they did them much harm, burning their chapels and schoolhouses, and destroying their villages. The government, however, soon recognized the help they had in the Karens, and organized them into "levies," with arms for general defense—a sort of "home guards." They have done much in putting down lawlessness. So much has this once "no people" risen in public favor and interest, that an officer, of some experience in the province, has thought them worthy a book, and has recently published one concerning them.

This war has thus brought to the front the Karen Christian, but it has also, under God's providence, done more. It has taught the many heathen Karens the difference between the God of the Christians and the dumb idols of the Burmans, and they are now moving rapidly toward Christianity in many parts of the province.

In all our cares of a Christian population of eight or ten thousand, during these troublesome times, our recreation has been the "blessed bees." We have had eleven swarms under study during the year. Observations given you in previous letters concerning the *Apis Indica* have been confirmed. We have been able to overcome the propensity of this bee to abscond, or migrate, at the end of the two breeding seasons, by cutting out all brood comb as soon as the young bees have hatched out. It would appear that this bee migrates only on account of the moth; for where the moth can not reach the comb the bees almost always remain; yet even then they bite down the old comb, after using it for breeding purposes two or three times. I have kept one swarm two years, and several a year, by thus cutting out all dark comb at the end of the breeding season.

Efforts to import European bees into this country have not been successful. Mr. Douglas, of Calcutta, left England early in the year on his return to India, with 20 stocks of Italians, and reached Calcutta with only two alive. Shortly after reaching India Mr. Douglas was taken ill of cholera, and died. So has passed away perhaps the only skilled beekeeper in all India. He was indefatigable in his efforts to introduce the European bee into this vast country.

This is a good year for *A. Dorsata*. Swarms of this bee have returned in large numbers, and those Karen villages domesticating this bee have large yields of honey. One village near here expects to gather about thirty barrels as its harvest of sweets.

At the time of writing, I am in camp on a lone mountain in an old forest. A short distance from my camp stands a gigantic wood-oil, or dammer-oil tree. It is nearly four feet in diameter, and runs up nearly one hundred feet without a limb, as straight as a candle; then the limbs branch off in a nearly horizontal position, and under these the *A. Dorsata* have their brood-combs. A dozen or more, from two to three cubits in length, are seen. What

a roar of humming wings you hear as these bees hasten to and fro with their loads of sweets!

Extracted honey is selling here at about 50 cts. per pound. Section honey! Ah! I wish you bee-folks could have this market for a while. I have succeeded in teaching my little *A. I.* swarms to put honey in sections, by giving them all the honey they can store away; but the honey thus stored is dark and thick, though the combs are beautifully white. This section honey is very different from my remembrance of home honey. A. BUNKER.

Toungoo, Burmah, April 30, 1887.

Friend B., I suppose we are to understand that the *Apis dorsata* has, then, been really domesticated by the natives. Now, if you have told us how they domesticate them, I do not remember to have noticed it. Do you mean the colonies hanging on those great trees 100 feet to the first limbs? In that case they may be domesticated, but I should think the domestication was pretty high up. Have they ever been brought down to the ground, and made to work in hives, and can it be done? Why in the world do your people hold honey at 50 cts. per lb.? It seems to me that, with only a moderate pasturage, bee-keeping would pay wonderfully at these figures. Why, we could almost ship our nice section honey to you, if we could be sure of getting any thing like the above price. You say one village expects to have about 30 barrels. Well, if those 30 barrels is to be *Apis dorsata* honey, that is another big fact. By the way, if we had a barrel here that we could declare positively was gathered by the *Apis dorsata*, I do not know but that we could get 50 cts. a pound. We could for a limited quantity, any way.

DO BEES EAT GRAPES?

SOME ORIGINAL FACTS FROM FRIEND DOOLITTLE IN REGARD TO THE MATTER.

WE clip the following from the *Rural New-Yorker* of June 11:

Much discussion has taken place of late in the bee-papers and elsewhere relative to bees eating grapes, the bee-keepers insisting that bees do not attack sound grapes, some going so far as to claim that it is impossible for the bee, on account of the construction of its mouth, to bite into a sound grape, while many grape-growers claim that bees do bite into and devour sound grapes. In this the latter are upheld by the late decision in California, by a jury who decided against the bees in that "bees and grapes" lawsuit. However, as this case has been appealed by the bee-keepers, it may be decided differently at the next trial, when the necessary proof is fully brought in. I am not among the number who claim that a bee can not bite into a sound grape, for I see no reason why an insect which can so gnaw as to enlarge the entrance to its hive made of solid wood, or bite holes through cotton cloth and other fabrics, could not do so if it were intent on such a procedure; but I do claim that the bee never does bite into a sound grape, for the simple reason that it was never made to bite into even the most delicate flower to get sweets, and that all openings made in grapes, peaches, pears, and plums, can be traced to other sources.

Among the bee-hives in my apiary are many choice varieties of grapes which were never worked upon by the bees to any extent until last season, at which time the vines of certain kinds were literally swarming with bees. The kinds most injured were the Lady and Belinda among the white; the Salem and Agawam among the red, and the Worden among the black. On a careful examination, I

found that the trouble with the Worden and Belinda came from their cracking open; but for a time the work on the others baffled me; for it was not until I had nearly made up my mind that the bees were the real offenders that I discovered the truth in the case. How I knew that the two above-named kinds cracked open was, that I found scores of them so cracked early on dewy mornings, before the bees had touched them, while the rupture was yet fresh, giving these a very different appearance from that of those worked upon by the bees the day before. If I had not examined them thus early, I should not have detected the cause; for by 10 o'clock the bees were so thick on them that I could see no difference between the old and newly cracked ones. But when I came to apply the cracking test to the rest of the grapes it failed to reveal that such was the cause of the trouble. I examined the bunches of grapes very carefully in early morning, but found all sound, except those worked upon previously, and again at 10 o'clock I watched the same bunches and could not discover any thing different, except that bees were all over them, sucking at the ruptured ones which I had marked in the morning, while on the next morning I found that many more of the grapes had been worked upon after my 10 o'clock examination. I expected, of course, if the bees were the offenders that they would tear the grapes open when they first came on them, while they were hungry, so did not watch in the afternoon.

After finding that there was no mistake in that the bunches of grapes were gradually being eaten up, I began to watch all day, reasoning that the bees, after sucking those dry which were open at 10 A. M., would tear open others, and I wished if possible to detect them at it. After watching all the forenoon I became almost discouraged; but at about 1 P. M., I saw on a bunch of grapes a stinging wasp, such as build paper nests in nooks and crannies about our buildings. In a moment more I saw this wasp bite a triangular piece of skin out of a sound grape, and go to sucking the juice from it. The bees now tried to get at the ruptured place, but the wasp kept them away with its feet, so that in no case did I see a wasp and the bees getting juice from the same grape. I soon saw more wasps, so that by two o'clock I judged that at least 100 grapes had been opened on a single vine. At about three o'clock all the wasps had gone, and the bees were having a good time at the grapes which the wasps had ruptured, but in not a single instance could I detect a bee opening a grape, although the bees ran frantically over the grapes in search of places from which to get the juice.

Later on I detected the work of mice on one vine which stood near a pile of rubbish, the mice seeming not only to like the sweet juice of the Agawam grape, but the seeds as well. It was easy to tell the work of the mice, for they tore open nearly every grape of the bunch worked upon. This gave the bees a fine chance on such bunches the next day. Thus after carefully watching all fruits worked upon by the bees, and in these cases of the grapes nearly deciding against these industrious insects, I wish to place it upon record that, so far, I have found the bee innocent, and do not believe a bee ever attacked sound fruit, although I allow that it could be so, if it had been ordained that it should thus get its living. It seems to me that it must be plain to all, that the bee was created for the fertilization of flowers, and that the honey was placed in there to attract the bees for that sole purpose; for all trees and plants capable of self-fertilization secrete no honey, as all will find if they give the subject close attention. G. M. DOOLITTLE.

Borodino, N. Y.

The above gives some light on the subject, but still it leaves the impression that bees are not much to blame in the matter—they work only on grapes that have been first spoiled by other insects. The question then arises, Are bees really a hindrance to grape-growing? that is, do they damage grapes that otherwise would have been salable? It seems to me, the bees are still a little more to blame than even friend Doolittle puts it. I have seen clusters of grapes that looked tolerably fair before the bees had been over them; but after they had

covered the bunches up, and fought over them, there was not much of any thing left. I can not say now that wasps were not the cause of their destruction, as in the case friend D. mentions; but I hardly think they have *always* been present when grapes have been entirely used up by the bees.

ALSIKE CLOVER.

PROF. COOK OFFERS SOME SUGGESTIONS RELATIVE TO THE DISPUTE BETWEEN MUTH AND CORY.

EDITOR GLEANINGS:—As per your request on page 428, I will write a word as to the matter of alsike clover. I will first quote from Dr. W. J. Beal's new work on grasses, which, Mr. Editor, I think you ought to keep in stock, and, with the many other valuable works which you sell in that line, distribute it among your many patrons. I assure you, as we should expect from the author, it is a most valuable work. Dr. Beal, under the head of "Alsiike Clover," after describing the plant, with a good illustration, says: "Found in Europe, North Africa, West Asia: introduced into North America. Its common name is derived from a parish in Sweden. In appearance it is so nearly intermediate between red and white clover that Linnaeus supposed it was a hybrid, and hence its specific name—*Trifolium hybridum*, Linn. It is not a hybrid. Alsiike likes rather moist land containing some clay. It is smoother and more delicate than red clover, and the stems are weaker—so much so that it is quite likely to lodge. The stem remains green after seeding. It stands dry weather well, is not apt to winter-kill, the flowers continue for a long time, and abound in nectar, which can be reached by honey-bees. Alsiike clover has a good reputation for pasture, and is a favorite with bee-keepers. It frequently yields from 3 to 8 bushels of seed to the acre, and these are only half the size of those of red clover, hence only half as much seed is sown to the acre. The seed is produced from the first crop, though it is often pastured a while early in the season. It is two or three years in coming to full size, and does best for pasture when sown with some stout grasses. The after-math is very light. When ripe it shells more easily than red clover, and is more apt to waste, hence more care is needed in the harvesting."

No one will question such an authority, and hence the idea of atavism, to account for the phenomenon as explained by Mr. Muth, is at once set aside.

As alsike is a distinct species, and not a hybrid, a variation so marked that any one would mistake it for red clover is not within the range of possibilities; at least, it so occurs to me. Again, the seed is very different—as Dr. Beal says, only half as large. Mr. Muth also makes this evident. Still, the average man has rarely had his observing faculties so cultivated that he might not make a mistake. A dealer like Mr. Muth, or a scientist like Dr. Beal, could not be deceived, while a farmer might quite likely not note the difference. Many of us, having eyes, see not, especially little things.

Again, red clover and alsike clover are very closely related; and granting the seed to be equally good in each case, we might safely conclude that conditions that would lead the seeds of one to germinate and grow would also effect a like result with the other. If the seeds were all good, my observa-

tion would lead me to say that, if the red-clover seed grew, the alsike would do the same. Still, there is room for a doubt here. The one might be much drier, possibly, than the other, and so be more tardy in its development.

In such a case as that between Messrs. Muth and Cory, then, I should conclude either that Mr. Muth was mistaken in the seed—the more likely supposition, it seems to me—or else that Mr. Cory was mistaken in his identification of the plants, which seems hardly possible. It is barely possible that very excellent land, with as excellent care and tillage, might produce specimens that would deceive a man of feebly developed observing powers. However, I should not expect this. No one who knows them could doubt for a moment the honesty, either of Mr. Root or of Mr. Muth; but it is quite possible that, in their great hurry and press of business, a lot of clover might be brought in that should escape the usual close inspection, and pass out similarly unscrutinized, and thus a sample of red clover go forth as alsike. The fact of their large business makes this all the more possible. True, special circumstances make this less probable in the case of Mr. Muth; yet which one of us has not had experience that proves it is easy to be mistaken, even when we are most sure?

I have stated this case to Dr. Beal and to one other close-observing scientific gentleman, and both agree with me in the conclusions as shown above. Should I sow alsike (?) clover seed when no clover had grown for years, and yet where the ground had been cultivated, and red clover appeared, I should not doubt for a moment that I had mistaken the seed.

A. J. COOK.

Agricultural College, Mich., June, 1887.

Why, my good friend Cook, I am afraid you do not read GLEANINGS any better than I read some other books and journals. Dr. Beal's work was noticed in quite a lengthy editorial, and we do offer the book for sale.—Your reasoning I should pronounce sound, even if it reflected a little on myself. There is one other difficulty, however, in the matter of the clover seed I sent to friend Demaree. At that time I had never dealt in any sort of red-clover seed, and there was none in our establishment—or, at least, there was none to my knowledge. Our alsike was put all together in a large bin, and friend Demaree was furnished seed from this bin, with all the rest of our customers. Had we been dealing in red-clover seed, as we have been of late years (peavine clover), I should have at once decided that the clerks had gone to the wrong place. In Muth's case, it is quite a mystery; for I agree with you, that both parties seem to be honest and straightforward.

THE WATER WE DRINK.

OUR WELLS AND CISTERNS; SANITARY DRAINAGE, ETC.

FRIEND ROOT:—GLEANINGS is just at hand. I, too, was very much surprised at Heddon on septic diseases. He has for years been giving us what he considered the cause of bee-disease, and I think he may now with pleasure and profit give his attention to some of the ills that afflict the human family. It might be that his throat

difficulties arise from some other cause than bee-poison. I think your article upon the subject of drainage and vaults will awaken inquiry. I have not used a vault for over 30 years. I use a box which rests upon two pieces of scantling. I often scatter in some ashes, or, what is better, a little dry earth; and when it is full I draw it out and dump into the ash-pit, and in spring and fall I haul to the garden and spade in.

I have known of several cases of typhoid fever, diphtheria, and death, from bad drainage and poisoned well-water. People will say it can not be *their* well-water, for it is clear and sparkling; nevertheless, there is death in the cup.

About six years ago I had the pleasure of hearing a lecture upon this subject by Prof. Kedzie, while I was in the Sanitarium in Battle Creek, Mich. I inclose a scrap which is the substance of that lecture, that I fortunately preserved. Use it as you think best. I am deeply interested in the subject. I look upon bad drainage and vaults as two of the greatest curses that afflict the human family, and a disgrace to our civilization.

GEO. THOMPSON.

Geneva, Ill., June 18, 1887.

The paper inclosed by friend T. seems to be so very valuable, and striking as it does right where the interest of many of our readers has been centering for some months back, we think it worth while to give the article entire.

The present age is characterized by a thorough and exhaustive examination of the relation of causes to physical health and life. Every alleged cause is also subjected to the cross-examination of test-tube and crucible, balance and spectroscope. Every witness must bear the tests of physical science. Sanitary science now *demand*s causes as well as results, and has planted its feet on the solid platform of positive physical science.

Fifth is the capital crime of physical existence. Air and water are the great purifiers and prime necessities of life. To breathe is the first and last of life. The moments of our existence are but pearls on a thread of air. The thread breaks; life is gone. Less obviously, but no less certainly, water reaches from birth to burial. Air has no vital action in the absence of water.

The oceans of air are too vast for human defilement in mass. It can be defiled only in spots. Water we deal with only in detail, and in small amounts it is easily capable of defilement. The special office of water is to purify; but in purifying it becomes itself impure. It comes to be soiled, and therefore is useless when soiled. It must be purified or got rid of. To purify, it must be pure. If filthy it becomes a source of danger.

By soil-water is meant water which is in or drawn from earth, water which has been freely in contact with the soil by falling on it and percolating and filtering through it and thus being connected with materials in soil held in suspension and solution. It is the water of wells and springs, not of lakes and rivers, which is exposed to the oxidation of the air and the effects of the agitation of currents. The spring pumps itself all the while, but the well is pumped at intervals, and so offensive materials may be worse in wells. The power of dilution of specific poisons like cholera or typhoid is not perfectly known; but the danger of non-specific poisons is diminished by dilution.

Water may exist in soils in three forms:

1. "Hygroscopic" water, which may exist in the dryest soils, as shown by minute drops when heated in a test-tube.

2. "Capillary" water, which makes soil damp and of darker color, but will not flow out by the action of gravity.

3. "Free" water, which flows in drains, springs, and wells. With this the sanitarian has to deal.

The water which will flow into a well may be regarded as drainage from surrounding pervious soil. It will flow with a pressure in proportion to the depth of the well, diminished by the friction of water on the particles of soil. The distance from

which water will flow into a well depends on the soil. [This, Prof. Kedzie represented on a chart by an inverted cone, with its base at the surface of the soil, and its apex touching the surface of the water in the well.] The diameter of the circle of surface varies with the porosity of the soil. If a tenacious clay, the diameter of the surface of this cone of filtration may be only 30 to 40 feet; while in sand or gravel it may be 60 to 200 feet. Any soluble material within this cone of filtration will flow into the well, calculating the soil to be uniform in texture. But if there are strata of unequal permeability, or if there are cracks, seams, or water-paths in impervious clays, the water will follow these seems almost an indefinite distance, and there will be a wide departure from the limits given. Materials without the cone may come through these seams.

This is an appalling picture, but there are certain conservative agencies to tone down the startling outlines. The soil is not a passive agent, but may act on such substances in solution in water in three ways.

First. As a simple mechanical filter to separate substances held in suspension. The texture of the soil is the chief factor in this action. [This he illustrated by the filtration of a blue precipitate thrown down in well-water by the action of ferrocyanide of potassium. The colored material was left on the soil in the tunnel, while the water was clear, proving the soil a very perfect filter.]

Second. Soil may act as a mordant to fix and remove coloring materials from solution in water. In 1836, Bronner, of Baden, noticed that color, odor, and nearly all taste, are removed from filthy water by filtration. All have noticed that subterranean waters are usually colored.

Third. Soils may produce chemical decompositions, making changes that will not take place in simple solutions. A similar experiment reveals the brown deposit of chloride of ammonium cast by a re-agent in well-water, but a mere discoloration on filtered water, showing the soil had taken out almost every trace of ammonium. This is a fact of highest importance to the sanitarian. This power, however, is limited. By using the soil made foul by the last experiment, a considerable deposit is found after filtration, showing the power of the soil to withdraw these materials and fix them in soluble and safe forms is limited.

Soil is a sanitary filter. It removes color, odor, and substances, but this power is limited. The greater the amount of soil for filtering, the longer is the time before this exhaustion of power takes place. The amount of soil has an intimate relation to its power of purifying. Hence the value of deep wells, provided the water filters through the entire amount of soil. The sides of the well should be made impervious, and then the water must filter down. Supposing the sides are of iron, there is some assurance of safety. This is true of "drive-wells." The water can not come through the sides; also worms and reptiles can not get into it. A drive-well is a very safe form of well.

But there is danger that the limit of power be exhausted by increase of contamination. Think of a privy-vault or cesspool within this cone of filtration. If this appears revolting, blame the facts.

"See if all is well with your well." Neglect which borders on crime could hardly go further. I here quote from Buck's *Hygiene* as follows:

Dr. Simon has described this common and deplorable neglect in the following terse sentences: "There are houses, there are groups of houses, there are whole villages, there are considerable sections of towns, there are entire and not small towns, where prevails slovenliness in every thing which relates to the removal of refuse matter—slovenliness which, in very many cases, amounts to utter bestiality of neglect in the local habit; where within or just outside of each house, or in spaces common to many houses, lies for an indefinite time, undergoing fecid decomposition, more or less of the putrefiable refuse which house-life and some sorts of trade-life produce: excrement of man and brute, garbage of all sorts, and ponded slop-waters; sometimes lying bare on the common surface, sometimes unintentionally stored out of sight; re-collection in drains or sewers which can not carry them away; sometimes held in receptacles specially provided to favor accumulation, as privy-pits or other cesspools for excrement and slop-water, and so-called dust-bins, receiving kitchen-refuse and other filth. And with this state of things, be it on a large or small scale, two chief sources of danger to life arise: One, volatile effluvia from the refuse pollutes the surrounding air and every thing which it contains; the other is, that the liquid parts of the refuse pass, by seepage or leakage, into the surrounding soil, to mingle there, of course, in whatever water the soil yields, and in certain cases thus to occasion the deadliest pollution of wells and springs. To a really immense extent, to an extent which, indeed, persons unpracticed in sanitary inspection could scarcely find themselves able to imagine, dangers of these two sorts are now prevailing throughout this country, not only in their slighter degrees, but in degrees which are gross and scandal-

ous, and very often, I repeat, truly bestial. And I state all this in unequivocal language, because I feel that, if the new sanitary organization of the country is to fulfill its purpose, the administrators local and central, must begin by fully recognizing the real state of the case, and with the consciousness that, in many instances, they will have to introduce for the first time, as into savage life, the rudiments of sanitary civilization.

The extent to which soil is polluted by excreta and other refuse matter, in the rural and small urban districts in England, and the danger of the contamination of drinking-water from this source, may be learned from the report of the late Royal Sanitary Commissioners, in which they say, that, estimating the town population of Great Britain at about fifteen millions, the remaining twelve millions of country population derive their water almost exclusively from shallow wells, and these are, so far as the commissioners know, almost always horribly polluted by sewage and by animal matters of the most disgusting origin. The common practice in villages, and even in small towns, is to dispose of the sewage and to provide for the water-supply of each cottage, or pair of cottages, upon the premises, in many instances, by garden attached to each tenement, or pair of tenements, two-holes are dug in the porous soil. Into one of these, usually the shallower of the two, all the filthy liquids of the house are discharged. From the other, which is sunk below the water-line of the porous stratum, the water used for drinking and other domestic purposes is pumped. These two holes are not infrequently within twelve feet of each other, and sometimes even closer. The contents of the filth-hole or cesspool soak away through the surrounding soil, and mingle with the water below. As the contents of the water-hole, or well, are pumped up, they are immediately replenished by the surrounding disgusting mixture, and it is, therefore, not very surprising to be assured that such a well does not become dry, even in summer. Unfortunately, excrementitious liquids, especially after they have soaked through a few feet of porous soil, do not impart the palatability of water, and the polluted liquid is consumed from year to year without a suspicion of its character, until the cesspool and well receive infected sewage, and then an outbreak of epidemic disease compels attention to the polluted water. Indeed, our acquaintance with a very large proportion of this class of potable waters has been made in consequence of the occurrence of severe outbreaks of typhoid fever among the persons using them.

Prof. Kedzie added:

"I do not know that any condition at all corresponding to this can be found in Battle Creek, but I have had the misfortune to find analogous conditions and similar results elsewhere in this State."

Prof. Kedzie gave several instances which had come under his observation. One family was always sick. There was no constitutional reason, and they were people of good habits. He suspected the well. The husband smelled the clean water, and said, "Doctor, you must be mistaken." He went lingeringly down to the grave; a nephew followed, and a son. The widow became bed-ridden. The premises were sold to a good family, and they became sick. He insisted on a new well, and they regained their health.

In Lansing, a man's only daughter was sick. He did not believe it was the well, but a conduit was found from the privy to the well, and the water was exceedingly foul. Many were sick. Standing by the well, with a dipper he could throw water on fire privies. One of the best men in Lansing sickened and died. The well was pronounced bad. The family took it personally, but a sewer was found broken within three feet of the well. Water from town pumps had been found to be very bad in some places. If this is the condition of the town-pump, what is the condition of the town-hearse?

There are many widows because disease and death have been carried into the house by the water-pail. The question arises, Must careless surroundings bring this? Such is the law of sowing and reaping. "The law of the harvest is to reap more than you sow. Sow an act, and you reap a habit; sow your habit, and you reap your character; sow a character, and you reap a destiny." Nature is inexorable, and knows no mercy. Her laws are written on two tables of stone. The first is, "Do this and thou shalt surely live;" the second, "Thou shalt not do that, lest thou die."

Nature has placed animal and vegetable life in reciprocal relations to each other, in opposite scales, in the balance of life. Plants thrive on the remains of animal life, and destroy the bad. From the poisonous carbonic acid they give back the life-sustaining oxygen, and take the deadly carbon. The poisonous remains of animals are the appropriate and grateful food of plants. When man puts asunder what nature has put together, disease comes in as a protest against the disturbance of nature's harmonies. From the organic nitrogen and phosphorous thrown out as deadly waste from animal systems, the plant forms the gluten and albumen of muscle and brain. Animals and vegetables are dual and reciprocal forms of life. Each feeds and protects the other. Only when put asunder do cholera, typhoid, and diphtheria, step in as avenging ministers of violated law.

Crowded cities disturb the reciprocal relations of

these two, and are unnatural. When we place ourselves in abnormal relations we must be more careful. We should place ourselves under the green flag of nature's protection, and cherish our grass-plats.

In conclusion, the speaker beautifully alluded to the vision of St. John in the apocalypse, of the pure river of water of life, clear as crystal, and of the tree of life on either side of the river; the leaves of which were for the healing of the nations. Blessed trees of life, whose leaves even here on earth are for the healing of the nations!

THE DISPOSAL OF SEWAGE IN LARGE CITIES AND TOWNS.

THE WAY THE MATTER IS MANAGED BY THE FRIENDS OVER IN ENGLAND.

THE disposal of sewerage was at one time a matter of very great trouble and expense to many of the towns in England, not only caused by the trouble of collecting and carting it away, but by numerous lawsuits on account of the nuisance caused by the great heaps of refuse, and the fouling of the water of the rivers and brooks into which the liquid portion flowed. Many methods were employed. One large town, after buying a farm to run it on, and going to great expense, which failed on account of the land being so low and already too wet, built a large factory to convert it into manure in a dry state, with an immense chimney-stack to carry off the vapors. Sewerage-farms, however, seemed to be the most rational way to dispose of it, and get rid of the trouble; but it was a long time before any of them were able to make expenses. One of the first to make a success of it was Bedford, and I will take that town as an example. The fact of its being the place where Bunyan was imprisoned may add some little interest to the place. I was there in 1879, and the old jail was standing in much the same condition as when he was an inmate.

The first step toward the solution of the sewerage problem was the construction of two sets of sewers—one for rain or storm water only, and the other set for the sewerage and water used to flood them. These last empty into large tanks, constructed for the purpose. These are many feet square, and about eight feet deep, and walled and floored with bricks. The sewerage is let into these in turn, and a certain amount of water, if necessary to reduce it to the proper consistency. Then it is all stirred up by chains worked through it by steam power. After a time it is allowed to settle awhile, and then the water is run off, comparatively clear, on to any portion of the farm ready to receive it. All the water being run off, the sediment is thrown out and given away, but more often carted away at the expense of the town; for by repeated trials it is proved to be of no value, all the fertilizing properties having been carried away by the water.

Rye grass is the principal crop grown, that being more readily disposed of. It is cut several times a year, averaging 40 tons (of 2240 lbs.) per acre per annum; in fact, some part is always being cut. It sells to horse and cow keepers at 25 cents per cwt. (112 lbs.). They also grow large crops of mangel-wurtzel, Swede (rutabaga) cabbages, onions, etc. When I was there last, the mangels would average about 35 lbs. weight each. A friend of mine told me he sent a boy with a horse and cart to get a load, and he came back without any—said there were none he could lift into the cart. They had onions

valued at \$350 per acre—2 cents per lb. being the usual price. To work such a farm with any chance of success requires a porous subsoil, well drained, so that the water will all get filtered, and run away so pure that any river or brook into which it runs may not be any the worse for it. The filtering power, or capabilities of the soil, should be so great as not to be liable to be overtaxed, for you will see that it is not a case of taking and irrigating just as much and as often as you please, but you have to dispose of all that comes; and in a wet season, when you are least able to get rid of it, more will come than at other times.

In England, very few farms are owned by those who work them for a living. Nearly all are let out to yearly tenants, subject to six months' notice to quit. Leases are the exception. Good land brings a yearly rent of ten or twelve dollars per acre; some pasture land much more. There is always a written agreement, signed by both landlord and tenant, the provisions of which are very stringent.

No hay, straw, roots, or manure, can be sold off, excepting potatoes; no field is to be sown with two white straws in succession—that is, wheat, barley, or oats, must not follow one another; no grass is to be mown for hay without a corresponding dressing of manure. The most generally approved plan is what is called the "four-course" system, which has to be worked much as follows:

FIRST YEAR.—After the land has been well worked, a heavy dressing of barnyard manure is plowed under, and some artificial sown broad cast and worked in. The crop planted or sown has to be turnips, Swedes, or mangels. Half of these, at least, have to be eaten on the ground by sheep. The rest can be hauled home to be fed to the stock kept in the yards during the winter.

SECOND YEAR.—The ground having been plowed and prepared in time, barley or oats, but more frequently barley, is sown, and with the barley a mixture of rye, grass, and clovers.

At harvest-time, when the barley is harvested, there is a good pasture of clover and grass which comes in very handy for the young lambs not long weaned, and can be grazed all winter, and stands for the crop of the

THIRD YEAR.—This can be either pastured the whole of the season, or only part of the time, and mown once for hay. In either case it has a good dressing of farmyard manure, some time during the summer, and in the fall it is plowed under for wheat, which is the crop of the fourth year, and completes the four courses.

There will be a better crop of wheat if the clover has been mown for hay than if it has been all eaten off. The cutting causes fresh roots to strike into the ground, and these, which seem to be very nourishing to the wheat, give better results than even the manure left on the field by the stock that eats off the crop. Something was said in your instructive and always welcome journal about 37 bushels of wheat per acre being a large crop. My father is still living, and working a farm near Kidderminster, England; and by following pretty well the system described he gets 60 bushels of wheat per acre. If the farmers working the old worn-out farms of England were to raise no more wheat per acre than is made on the fertile and inexhaustible soil of this country, they could not pay their rents.

Hondo, Tex., Mar. 31, 1887. GEO. E. HAILLES.

Friend H., your article is an extremely in-

teresting one to me, and I am a little surprised to learn that the valuable part of all this foul matter can be washed out by stirring it up in the way you mention. The undertaking seems to be quite an expensive one, however. Now, inasmuch as a large part of the expense is due to the water combined with this foul refuse, is it not possible to lessen the labor of moving about from place to place by evaporating a large part of this water, and at the same time avoid taking therefrom any thing valuable for agricultural purposes? Some of the friends thought it was astonishing because I spoke of 40 bushels of wheat to the acre, some time back. An English gardener in my employ (and a Christian gentleman of veracity) says he has seen a field of 20 acres that yielded 72 bushels of wheat to the acre. This was, of course, in England. He said he could not tell what means were employed to secure this wonderful crop of grain; but it was the result of intelligent work on ground that was naturally favorable for such a crop.

ERRONEOUS OPINIONS IN REGARD TO THE HONEY-BUSINESS.

ALSO SOMETHING IN REGARD TO MANUFACTURED COMB HONEY.

ONE of our subscribers forwards us the following, taken from an editorial in the *Wellington Enterprise* of June 8:

At a meeting of the Northern Ohio Bee-Keepers' Association recently held at the Gregory House, New London, it was decided that the next meeting should be held in Wellington next October. We will welcome the gentlemen to our town, but whether the little bee sanctions such meetings is a question. Give us the old-fashioned hive with plenty of white clover and buckwheat for the bee to subsist on, and then let the little insect perform its work as nature has dictated, and we will guarantee a far superior article of honey will be placed upon the market than at present. The bee needs no educating.

Bee-keepers do not propose to "educate" bees; they simply give them facilities for indulging in their ruling passion—gathering honey—in a way infinitely better than that which Nature provides. When it is found best not to build bank-barns for horses and cattle, then it may be best not to provide good hives for our bees. Those who "let Nature have her own way" are those who never hoe their corn, comb their hair, wash their face, build a house, nor sow grain, but simply live wild. Nature gives man a swamp, and he makes a park of it. Nature never has "her own way" so perfectly as through the medium of sanctified common sense.

Now, then, friends of the *Enterprise*, are you not in danger of discouraging enterprise and progress in the remarks you make? When you intimate that honey of the olden time was superior to that gathered by the bees of the present time, are you not making a mistake, and casting a slur upon a great body of honest and earnest people? It is true, that we produce tons of honey now where we used to produce pounds; but I think you are mistaken in intimating that there is a difference in *quality*. Bees gather honey now exactly as they did in the olden times, and I do not believe it true that

either clover or buckwheat has deteriorated one particle in their product. On the contrary, the honey gathered now from alsike clover seems to be considered, without a dissenting voice, quite a good deal in advance of the honey from the old-fashioned white clover. If you will apply to some bee-keeper near you, I think he will give you the means of satisfying you of this.

Two or three years ago our newspapers were full of slanderous statements about the adulteration of comb honey; but most of these very papers have kindly and courteously apologized for their mistaken statements. In regard to liquid honey, it is now offered at too low a price, I presume in your own town as well as elsewhere, to make it an object to adulterate it. Some years ago we offered \$1000 to any one who would inform us where spurious comb honey was manufactured. The offer still holds good; but every effort to find a single pound of artificial comb honey has so far failed.

From the same paper of June 15 we clip the following, which is, as you notice, taken from the *Hartford Journal*:

A process for making artificial honey has been invented, and accepted by all the bees that have tried it. This leaves the bees free to gather honey all the day from every opening flower in the season of honey-making without wasting time as wax-workers.

Now, although the above does not make any definite statement, it is, without question, a sort of clip at this old exploded piece of slander. There is no process in use for making artificial comb honey, and no such thing has ever been invented. Bee-keepers are, as a rule, honest men, and they would no more try to build up a trade with bogus honey than they would by making bogus dollars. If they were so foolish, they would probably turn out just about as badly as bogus-money makers.

MORE ABOUT THE McFADDEN MYSTERY.

WINTERING BEES IN A CHILLED CONDITION.

IN answer to yours of the 13th, asking for information regarding Danie McFadden, I would say that I suppose he is the same D. McFadden whom I had the honor of entertaining for a few days about a month ago, as he was passing through here going west, and I assure you that I was surprised at the intelligence displayed by him in our conversation about bees. I thought, previous to his acquaintance, that I knew all about bees; but I discovered that I knew absolutely nothing, and I therefore am resolved to adopt his method of keeping bees over winter. Either you or I have misunderstood Mr. McFadden as to freezing the bees. I understood him to say that he only *chilled* them. The bee-business is his business, and it is all he wants, as he says that he and his father-in-law, who is an Indian, by the name of Muskegen, or Musquegan, or something like that, have made large amounts of money out of bees; and, to tell the truth, I did intend to make something out of the discovery myself; but I find from your communications that he has kept his word, for he told me that he would like to let the world know of this great Indian discovery about the wintering of bees.

How he made so much money was trading honey for furs; and, as he put it himself, it counted both ways, and he told me that he would not live among the so-called civilized people on any account. He spoke about a love disappointment which was the cause of driving him to live with the Indians, and he afterward married an Indian girl, and claims to be delighted with the life he is leading. He declares that the Indians are more intelligent than the white people; that every herb that grows, they can tell what it is good for in the line of medicine, and they can cure almost any disease. He appears to be clear-headed and reasonable in his arguments, and states that any thing that is not known to the Indians is not worth knowing. I am going to communicate with him, or endeavor to do so, as I am greatly taken up with his ideas, especially about bees, and am therefore anxious to attain all the knowledge I possibly can, and have all faith in what this man states. Why would not this work as well with bees as it does with flies and insects, which we see crawl out when the warm weather comes?

I am writing to McFadden to-day, but do not expect to get an answer before August, if then; but when I do I will let you know, and I shall be pleased to give you any further information that I can.

McFadden was to leave for his home among the Indians about the 26th of last month.

G. WATSON.

Alliston, Ont., Can., April 20, 1887.

Thanks, friend W.; but I am afraid you are placing too much faith in McFadden's statements. No doubt he has learned many valuable facts from his Indian relatives by marriage; but when he declares broadly that the Indians are more intelligent than white people, we must consider him careless and reckless in his statements, if nothing more. If there is a man living who can keep bees over winter, or even for one month, in a chilled condition, we are ready to pay the man for his services in performing the experiment.

30,000 LBS. OF HONEY FROM 80 COLONIES IN CUBA.

VALUABLE ITEMS FROM A. W. OSBORN; COMMENTS ON "OUR OWN APIARY" FOR JUNE 1ST.

FRIEND ROOT:—Last year being a poor one for bees, it was impossible to get more than 80 colonies in condition to store surplus, when the winter flow began. After the heat of summer had gone, the natural conditions for the secretion of honey seemed more favorable, and the 80 colonies we had in condition worked with a vengeance, filling their top stories every week, for nearly four months. At the end of that time we had taken 30,000 lbs. of extracted honey from the 80 colonies. Now, friend Root, this amount of honey was stored by hybrid bees—hybrids from the Holy-Land and Italian queens, mated with black drones; and another thing in their favor, my little son, 12 years old, and myself, took every pound of honey, and did not wear a hat or bee-veil. We have now increased to 500 colonies, and still we use no protection whatever. So much for the abused hybrids. They get the honey all the same, and I would sooner handle our strain of bees, than any pure race I ever saw.

FOUL BROOD IN LARGE APIARIES APT TO REAP-PEAR.

In Ernest's report, June 1, I see that foul brood has made its appearance in his apiary again this spring. "Didn't I tell you so?" After many years of experience with foul brood I have never seen it cleaned out of a large apiary in any other way than fire and water for the combs and hives, and starvation for the bees. I do not say that it can not be done, but I say I have never seen it. We have seen reports where it has been done, but in some of these I *know* there is room for doubt. I can truthfully say, there is none in this apiary. I sincerely hope Ernest may clean it out. I would not fool with it, but go to work and melt every comb, boil every hive, and starve every bee that is infected. In that way he will get rid of it.

HOW TO USE HARD WOOD IN THE BINGHAM SMOKER.

The Bingham smoker, Ernest says he has a little trouble with. After using the Bingham for 10 years, I will tell you how I manage it. I use hard sound wood, about like your hard maple. I saw it up the right length for the smoker, and split it about $\frac{3}{4}$ or $\frac{1}{2}$ inch square, and I prefer to have it pretty much green—not left to season more than a day or two, for in that condition it will burn all that is necessary, throw less sparks, and give a much stronger and denser smoke.

HOW TO START WITH GREEN WOOD.

As I have told you before, our smoker is lighted as soon as daylight, and does not go out until too late in the evening to work with bees. Well, the last thing to be done with the smoker at night is to see that it is freshly filled with wood, then well blown up and set down for the wood to season and char; and when I think it is about right, I lay a little flat stone over the chimney, and smother the fire. The next morning I have a smoker full of as fine charcoal as you ever saw. This charcoal lights very easily when put on top of a few shavings, and will start the green wood off in good shape. It is a little trouble, I know; but I never knew a good crop of honey secured without trouble. When I keep my smoker well filled with green wood I am not troubled with sparks. Take out that little wire screen, between the bellows and fire-box, punch out the wire cloth, and return the casing, to keep the wind from coming out there; for if the wire screen is left in it soon fills up from fuzz from the bellows, and makes it work hard.

QUEENS MISTAKING THEIR HIVES.

As I have told you, our hives here are all painted white, with no difference in looks at all, and set so closely together that many of them touch one another. When I expect a queen to go out I lean an old weather-beaten board up against the white hive, which makes an object that is easily seen, and the queen marks her location by it. When I have two queens go out of hives that sit very closely together, I put a board to one and a red tile to the other (the tiles are about 16 inches long, and six or eight inches wide. In this way the queens hardly ever fail to get back to their own hives.

About the workers getting mixed, or getting in the wrong hives, and killing queens, that they do go into other hives I have no doubt; but as to their killing queens under such circumstances, I have my doubts; for if such a thing were common, we should have plenty of queenless hives; but we do not have.

Now, friend Root, I am sure that the average bee-man loses very many queens in shaking the combs in handling bees; and I quit that practice, for the reason that I was satisfied I shook many queens outside the hive, and they never got back. I proceed as follows: I raise the cover while my son pours in the smoke. When the bees are well smoked down I raise a comb and hold it with one hand and brush the bees with the other, while my son smokes and brushes the other side (no shaking). In this way there is no turning of the comb, and it is very quickly cleared of bees, and the gentle volume of smoke constantly going over the top of the hive keeps the bees down, and rapid and effectual work is done; as soon as a full comb is taken out an empty one is put in; and thus we proceed from hive to hive, getting over a large number in the least possible time, and no loss of queens, and very few stings.

THE COMB-CART.

I wish Ernest would make and use one. I know he would not be without one again. Do not make it to clear the ground more than about 5 inches; for if you do, when the front or back end rests on the ground there will be danger of the combs slipping one way or the other. Begin loading at the back end, pulling the cart from hive to hive. When full, push it before you and it will astonish you with what perfect ease you can handle 30 combs of honey.

IS FOUL BROOD MORE APT TO AFFECT SOME RACES OF BEES THAN OTHERS?

I most certainly agree with you in your remarks upon J. J. Keith's statement (page 442), where he speaks of foul brood among his Italian bees, and not the blacks; for if there is any difference in the two it is in favor of the yellow bees. I should say that he did not have the virulent foul brood. Once in a great while brood will die in the cell; and one who has not had much experience with foul brood would think it was the simon-pure stuff. I have had two such cases since I have been here in Cuba, and I came to the conclusion that it was the fault of the queen, owing, as I thought, to a constitutional weakness in the queen; and upon removing her and substituting another, the trouble was removed. Let's hear from Prof. Cook upon this matter.

I prefer the beveled-edge hive. I have used both extensively. I would not have the square sides.

A. W. OSBORN.

Havana, Cuba, Apartado 278, June 16, 1887.

Many thanks, friend O. You are hardly a candidate for Blasted Hopes yet, are you? Your yield from 80 colonies was large, not to say enormous—375 lbs. per colony. We should very much like to know what was your greatest yield from any one colony, and about how much said colony in its best days stored in one day. — In regard to the matter of foul brood, we are afraid, as you say, that in large apiaries it is difficult, if not well nigh impossible, to cure the disease in one season. At the present writing, June 22, we are having one or two cases appear daily. This is somewhat better than a week or two ago. — We think it is quite likely that sound hard green wood would work nicely in the Bingham smoker, when it is got well going. We will try it and see. If any one has any better way of using the Bingham or Clark smoker we want to know it. On the other

hand, friend O., I hope you will try sawdust mixed with excelsior, and then stop the nozzle with grass, as described in the issue for June 1, department of Our Own Apiary.

VIRGIN QUEENS.

IS IT ADVISABLE TO DESTROY THEM WHEN 20 DAYS OR MORE OLD?

FRIEND ROOT:—Not presuming to dispute what is laid down in your A B C book, nevertheless your advice to destroy queens that do not lay within 21 days after they are hatched does not agree with my experience. For the past few years, early in March I place my bees on their summer stands from the cellar, and the first warm day after they have had a flight I examine all as to the condition of their stores, keeping a sharp lookout for queenless colonies. I usually find from three to five colonies, out of 50 or 60, that are queenless. I then hunt around until I find a comb with eggs. Out of this I give to each queenless colony a small piece of comb with eggs in it. If the colony is strong enough they seldom fail to raise a queen, but it is then 6 weeks or more before drones are flying. Those queens begin flying soon after drones begin to fly, and prove very fair ones, but never the best, but are about as good or equal to those reared in any other manner artificially. I have watched this matter carefully by examining colonies for drones and drone brood, and I am almost convinced, but not positive, that those queens are 21 days old or more before they are fertilized. Now, friend R., let me stop and tell you, for you are doing a great deal of good that you are unaware of, and may never hear of in this world, not only to me, but to many others. You will say, or think, "There must be some mistake. I don't doubt the queens were probably fertilized long before they began to lay, by drones that escaped your scrutiny, which possibly might be the case, but I am skeptical."

This has been the worst season, up to a week ago, I ever experienced. There is nearly 100 acres of all-sike clover in my locality. It failed to yield honey. I think, because of the long drought last summer and this spring. I was making great expectations, as this was the first season it blossomed. Red clover, for three or four days, gave a good flow of honey—the first crop at that, but my bees were destitute at the time, and barely filled their hives only in the strong colonies. I have noticed before, when red clover is dwarfed it yields honey bountifully, and the bees swarm on it; but when it is so rank they do not notice it—at least, that is the way it acts in this locality.

M. F. TATMAN.

Rossville, Kan., June 20, 1887.

We are always very glad to receive criticisms, or to be corrected, where our statement is apparently wrong, in the A B C of Bee Culture; but, friend T., you and the A B C book do not differ so essentially, after all. If you will read carefully the matter under the head of QUEENS, especially that part under the sub-head, "How Old may a Queen be and still become Fertilized?" p. 202, you will find the following: "I think I would destroy all queens that do not lay at the age of 20 days, if the season, flow of honey, flight of drones, etc., are all right." Notice the last part of the quotation. Dur-

ing certain times of the year, when there are no drones either early in the spring or late in the fall, we sometimes wait two or three weeks, or even a month, before the young queen becomes fertilized. Late in the fall, it is our practice to wait a little longer on young queens than we would where the essential conditions are present; that is, "if the season, flow of honey, flight of drones, etc., are all right."

PROF. COOK IN REGARD TO DRINKING-WATER, SEWAGE, ETC.

HE TELLS US SOMETHING OF HOW GREAT IS THE DANGER.

I DO think you are entirely correct on the drainage, or sewerage question. I should seriously dislike to use water in a well dug wholly in land or ground that was even many feet from a source of contagion. I know of an epidemic of typhoid fever which destroyed two bright young lives last summer, and nearly cut short several more, and clearly from just such a cause. That the germs may be passed through porous soil for a long distance is positively proved. That such germs may also be stored in such soil, constantly threatening life, although their presence is unknown and unsuspected, is equally true. But when a person's constitution, through some lack of vigor, is susceptible, they then lay their fatal grip upon him, and he becomes a victim to these same unwholesome wells. There are two points of vast practical moment. 1. Get water from some stratum which is well underneath a stratum of clay. This may require a deep drive, or bored well. The drive-well patent has now expired. 2. So arrange privy-vaults and other sources of filth and contagion, that the matter shall all go on to the soil and enrich it, and not possibly, by any means, into our wells to poison us. I might add another point: Be sure that no drain can be foul the cellar air, and thus bring diphtheria to our homes. These three points are the first I should look after in entering a new home.

A. J. COOK.

Agricultural College, Mich.

A BEGINNER'S TWO-YEARS' EXPERIENCE.

SOME NOTES FROM A SOUTHERN JOURNALIST; HOW HE KEPT BEES; THE RESULT AND THE MORAL OF THE MATTER.

A BOUT two years ago I became so worn down with editorial and similar work at the desk, having been at it for something like 25 years, that I concluded to stop for a season and take to the "poetry of labor" and try the "catching enthusiasm" of the busy bee. I had often read about bee culture during my editorial career, and, in fact, had a copy of the ABC book, which I received from you some nine years ago for advertising in a newspaper I was then editing and managing. The long-continued and hard work of the kind mentioned had very much worn me down, so that I became at times so weak I could scarcely hold my arms over the desk to examine a newspaper. I frequently had palpitation, and had to take stimulants of some kind, often to enable me to go through the day's work. Being nearly 50

years old, I knew I should not be able to hold out much longer unless I took a rest, and so last October, two years ago, I resigned the position I then held as manager of the advertising department of a large patent-medicine firm, and commenced to read about bees. I bought every book I could get on bee culture, several old volumes of GLEANINGS, and these I read and re-read until I was a walking encyclopedia on bee culture, as I thought. In the winter I procured an old gum of hybrids, bought for Italians; and, having ordered and received hives, and every thing I needed, from A. I. Root, all of which gave the utmost satisfaction, I set about; and, being naturally a mechanic, I placed all the goods, hives, frames, crates, etc., together; and, with the hives neatly set out in our beautiful side yard, 20 x 80 feet, and painted white, the whole, together with neatly arranged vines, flowers, etc., formed a picture of surpassing beauty. I had ten hives and an old gum which I was to transfer to movable frames.

About this time I bought two colonies of Italians in shipping-boxes; and the gentlemen who sold them to me candidly wrote me that two colonies were enough, and that he did not desire to sell me any more. I placed those two colonies in two Simplicity hives, and the gum I transferred, making, as I know now, a rather unworkmanlike job of it; but I was intensely interested in bees, and I intended to make it a success. In fact, the bee-business took possession of me. I could sit by the hives for hours and admire the beauties as they worked, and I never tired in being in the apiary, where I stayed and worked, until, from the pale desk-man, I became as brown and sunburnt as an Indian. But I didn't mind the sun-burning—I was "in for the war," and intended to serve it through and make honey, bees, queens, etc.

Well, the first spring and summer I had to feed those bees through the entire season, adding several swarms, and also four other colonies which I bought. I worked and fed, and looked daily to see the sections filled out with honey; but, alas! they did not fill, and so the season went through without a single section being filled out, and I was out of pocket \$150 for bees and fixtures, and \$25.00 for sugar fed to the bees. Total loss \$175, and a whole year's work gone for nothing, which would have netted me at least \$1800 if I had been working as I did the last year of my desk experience. But notwithstanding all this I did not lose faith in the bees; and when winter came on I packed my favorite hive well, packed partially the others, and so the year closed, as we went into winter quarters.

During the next winter I read and re-read again, and procured several other books on bee culture, determined to make it a success the next season if possible. It is true, I remembered the sweltering days spent in the apiary the year before, as well as the loss; but the thing that I was after was not to be beaten out by my ill success the year previous, and so I reasoned the cause pro and con, and I at last came to the conclusion that the reason of failure last season was not so much that the season was rainy, and then too dry, but that I started with too small colonies, and resolved that the following spring I would "take time by the forelock" and have strong colonies to begin with. Early in February I commenced to feed those colonies, which, with the beginning of the second year, amounted to ten, or at least those which showed that they had

little stores. When the spring opened I had strong colonies all of them—and I can tell you that the way they buzzed over the fences and went for the flowers was pleasant indeed to their keeper. I think I managed them correctly the second year, and the result of this "stick fast" disposition of mine is, that the hives are full of honey, the sections are filled with beautiful combs, and I think that, if nothing happens to prevent, I shall reap as my reward at least one hundred pounds of honey from each colony, and that, too, when we have had two droughts, one which lasted all through the spring, when we had not a particle of rain in nine weeks, and a May and June drought also. I verily believe, that, if we had had an ordinarily good season, I should have made a great deal more money than I did; but I am satisfied with my second year's work; and while it does not pay heavy in dollars and cents, I have reaped a world of pleasure, and my palpitation and weakness have gone. I may say that my health is now very good, and I feel that, with the coming fall, I shall be again ready for almost any kind of work. I have worked two seasons when the thermometer ranged 100 and sometimes 102° in the shade, and when my clothing was wringing wet, through and through; but I found after the work I could then take a bath and feel about as well as ever, and more particularly if I lay down an hour or two after the bath. I may also add, that before this experience I was much troubled with insomnia; but that, too, has vanished, and every night I sleep soundly.

For the benefit of other beginners, and after two years of arduous experience, I will add that I found the greatest satisfaction from the use of wide frames in the second story. I have tried both the crates and the wide frames, and I have noticed that, several times, when I had baited the bees in the crates, they would commence putting honey in the sections in the crates, and for some cause would afterward carry it down, and cease work in the sections altogether. There is still another objection to the crates; and that is, that when it becomes necessary to take out frames of brood to prevent the bees from swarming, and yet to keep the colonies strong, it could not be done with the crates; but with the wide frames these surplus frames of brood could be placed upstairs, and the bees be prevented from swarming, by placing sheets of empty foundation in their places from time to time, and at the same time the colony would be kept rousing strong. With me I had no trouble in getting the bees to work in the wide frames by simply lifting a frame of brood and bees up into the second story, and placing this frame between two wide frames containing sections with foundation starters. For two seasons I noticed that it was much better to use wide frames than the crates, and I shall hold to them until I am convinced to the contrary. It may be true, that in the North, where you have a heavy flow of honey, that the crates may do as well; but they did not work as well with me. I therefore, for reasons stated, consider the wide frames far superior to crates, and more especially with beginners. I think the one fact of being able to use the wide frames in such a way that brood-frames can be placed with them in the upper story, to prevent swarming, and at the same time to keep the colony strong, is a great inducement to use them.

I think after this I shall abandon the bee-business for something that is more profitable. I may keep

a few colonies wherever I happen to be, for my own amusement and instruction, but I do not think it could be made to pay as a regular business in the South, unless one made his own pasturage, for which purpose I have not the land. If I had the land to make the pasturage, or if I were in a honey-country, I would certainly select bee culture as one of the most pleasant of all callings. I truly think it is the most beautiful business in the world.

I have had all sorts of experiences—robbing, uniting, dividing, queen-raising, and some of the queens I raised from the egg now have very large colonies; and withal I must say that, in a busy life of more than forty years, I know of no business that is half as ennobling as working with bees. It is truly "the poetry of labor," and as truly they "teach the art of order to a peopled kingdom." I never again will be entirely without bees.

I can now say, all honor to those who work with the bees. I never knew a bee-keeper but that he was honest, industrious, and loved the works of his Creator. If they are like myself, and I presume the most of them are, they can see much of God in the bees, the flowers, the whisperings of the winds—"sermons in stones, and good in every thing." Certainly, all bee-keepers must, with the Psalmist, often exclaim, "How wonderful are thy works, O Lord!"

T. E. HANBURY.

Atlanta, Ga., June, 1887.

OBSERVATIONS CONCERNING THE EGG-LAYING OF QUEENS.

EXCEPTIONS TO GENERAL RULES.

IN my apiary I have had queens whose eggs produced drones only. They, having deformed or cramped wings, and after many ineffectual efforts, for a week or ten days, to fly, returned to the interior of the hive and commenced to deposit eggs which produced drones alone.

I had one queen, perfect in her appearance, except the right wing was wanting, and that side represented by only a stub next the body, where the wing comes out, that, in some way, became fertilized, or partly so, but she was not very prolific, and I removed her.

I also had in my apiary, several years since, two queens, very prolific layers, but whose eggs produced neither workers nor drones. They would not hatch, but dry up in the cells. I now have a still different case to report from either of the above.

In May, 1886, I had half a dozen or more cells, ten days old, from a favorite queen, which were placed in as many nuclei containing from three to five Langstroth frames, filled with comb honey, and covered with bees. The queen I wish to inform you about now was from one of these cells, placed in a five-frame nuclei. As to outside appearance she was perfect in limb and wing, and of ordinary size. The hive was examined every two or three days, after she emerged from the cell, when the 12th and 14th days were reached without fertilization or the depositing of eggs. The 21st and 22d day came and passed without signs of fertilization. Accepting the Huber theory as regards retarded impregnation, I was satisfied that she would, in a few days, deposit eggs which would produce only drones. I did not examine again until about the 32d or 33d day, when I found the combs well filled with eggs, many hatched, and some larvæ showing several

days' advancement; but a few days later, when the capping commenced, to my astonishment it did not indicate drone brood, but had the flat caps instead of the rounded which are placed over drone brood—whether in drone or worker cells, and on the 21st or 22d day after she commenced laying, as usual the worker bees were appearing. The queen is now in my apiary, a valuable one, and keeps up a ten-frame colony as prolific as if she had met the drones the 6th or 8th day of her life. So this is another exception to the generally accepted rule or theory as regards the fertilization of the queen-bee. The hive was not within ten or twelve feet of any other, and I am well satisfied there was no loss or exchanging of queens, but that she was the identical queen hatched from the cell given in May, and did not lay an egg until she was 27 or 28 days old. I did not notice the evidences of copulation, and can not tell when that took place; but I think it must have been two or three days before she commenced laying.

W. P. HENDERSON.

Murfreesboro, Tenn., June, 1887.

NOTES AND QUERIES.

* DO FIRST SWARMS LEAVE BEFORE THEY HAVE A CAPPED QUEEN-CELL?

HOW about Mr. Doolittle's assertion, that the first swarm of bees never leaves till the queen-cells, or some of them, are capped? With us the exceptions to this rule are very common. I should say that one-third of our first swarms leave before cells are capped. Is this due to locality, or more likely to difference in the strain of bees? Our bees are now largely of Syrian extract, and that may account for the difference. How have others found it? A. J. COOK.

Agricultural College, Mich., June, 1887.

[I believe that, when we had nothing but black bees, the rule given by friend Doolittle used to be pretty certain; but when the Italians came they swarmed quite frequently without any sort of preparation in the way of queen-cells. Perhaps we have not quite understood Mr. D.; for I presume he is as well acquainted with the above facts as almost any one of us.]

EUTOCA VISCIDA.

The plant sent from J. P. Israel, Olivenhain, Cal., is *Eutoca viscida*, Benth. It has no common name.

EXPERIMENT STATION,

Columbus, O., June 11, 1887. Per CRAIG.

LOTS OF HONEY.

We commenced this spring with 12 swarms, and have had 36 now. We had one swarm the 7th of May. Our bees are making lots of honey. We lost 5 swarms.

F. D. SHEPKEY.

Sparta, Mich., June, 1887.

WET WEATHER.

Constant wet weather during the past ten days has caused us a loss of one-fourth of our crop of honey. Colonies have been scarcely self-sustaining yet, and to-day many are dying for want of food—a very unusual thing after June 1.

S. W. MORRISON.

Oxford, Pa., June 8, 1887.

WINTERING BEES IN THE SNOW.

My mode of wintering bees is as follows: Place the hives on some level foundation, and pack them in rows as closely together as possible. Cover them with boards the width of the hive. With the first snow, cover the boards up with snow as much as

possible, and add with each snowfall, until covered to a depth of 3 or 4 feet. They will come out all right in the spring. Any one wanting more particulars about my experience in this covering can address me.

L. H. SPENCER.

Streaton, Ill., June 20, 1887.

[Your plan would probably work all right with you; but with a January thaw, such as most of us have, followed by a cold snap, it might be disastrous to the bees.]

CELERY.

I got one packet of Golden-leaf bleaching celery from Burpee last spring, and I raised the nicest and best I ever saw. I bleached it with boards 12 in. wide. The season was very dry. I ran water between the rows.

WM. ASTRY.

Franklin Square, Col. Co., O., Mar. 8, 1887.

HOW TO GET RID OF BLACK ANTS.

I have found a remedy for black ants that infest hives. It is new to me, but perhaps not to you. It is fine salt sprinkled over them and in the cracks through which they crawl. I have driven away whole nests. Bees are in good condition. There is lots of white clover.

H. STILLINGS.

Boling, Kan., May 24, 1887.

A SUGGESTION ON MILLER'S PLAN OF REMOVING SECTIONS.

I have been looking over Dr. Miller's article in GLEANINGS, on taking sections out of supers. In place of knocking and pounding, why not have a small light lever attached to your table, and when you get your super in place just bear down gently on your super till it drops off? AARON BROGLER.

Jacksboro, Tenn., May 23, 1887.

CLOVER.

Is mammoth clover as good for bees as the common red? We wish to seed 50 or 60 acres to clover—alsike mostly I think, the coming spring.

MRS. J. N. MARTIN.

Pauline, Kan., Jan. 9, 1887.

[Mammoth clover is fully as good as the common red, and I believe it usually yields a good deal more honey, although I believe alsike is generally considered more profitable, when we consider both honey and seed.]

MORE PROOF THAT KING-BIRDS DO NOT SWALLOW BEES.

King-birds do kill bees. They catch them on the wing, and just give them one snap and let the bee fall. It does not look as if they had time to suck the honey, but I believe they do. I have sat in one place and shot seven of those birds without getting off the seat. I have not been pestered with them for two years.

S. TEMPLETON.

Aroma, Ind., May 22, 1887.

MILKWEED POLLEN.

I am in the bee-business, and on reading your book I try to keep posted; but here is something new to me. What this is on my bees I can not tell. They come out of the hive and fall off the alighting-board, crawl around a little and soon die. I send you a few inclosed, to investigate.

A. M. McDONALD.

Blum, Hill Co., Tex., Apr. 26, 1887.

[Why, friend M., your bees have got the milkweed pollen clinging to their legs. Haven't you seen it pictured in the A B C book? The question is, How do they get it in April? There can't be any mistake about it, for it is the veritable saddlebags appendages, so familiar to us every fall. I hardly believe, however, that enough of your bees will die from this cause to produce any great loss.]

LOSSES IN MICHIGAN.

Our bees are doing well. The cold winter took a third of them. But that is not as bad as one of our neighbors suffered. He lost 32 out of 33. Bees are worth \$5.00 a swarm here this spring.

HEBER WALDRON.

Palo, Ionia Co., Mich., May 30, 1887.

HOW TO DISTINGUISH THE BUMBLE-BEES THAT DON'T STING.

In answer to your foot notes, page 182, you can tell the drone bumble-bee by a white spot on the head. When I was a boy, and used the shingle, I could tell them ten feet away. The white spot is square. When I saw one with a square white spot I knew that he could not sting. JOS. FOGARD.

Marion, Ill., Mar. 12, 1887.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHAT IS THE TROUBLE WITH THE BEES?

INCLOSE in this a sample of a bee, or of something else, which I find in one of my hives. The colony is hybrid, and strong and healthy. I have referred to all the authorities which I have—the A B C book, Langstroth, the *American Bee Journal*, and GLEANINGS, and all that I have been able to find is a short note on page 439 of the last GLEANINGS, where a man in Georgia has been led to observe the same thing. He says his bees, from ten in the morning till evening, are driving out and killing a bee, in size between a bee and a house-fly, very black, with occasionally the mark of an Italian. The insect that I observe is more like a wasp than a bee, sometimes with one broad band. My opinion is, that they are confined to the hybrids, and that it is caused by introducing or mixing. I should like very much to hear the opinion of our teachers, on the subject.

W. P. ENGLAND.

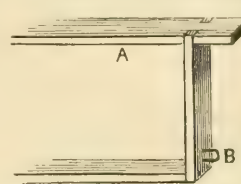
White Pine, Lycoming Co., Pa., June 8, 1887.

The specimens of bees were received. After carefully examining them and reading your letter, I am strongly of the opinion that, before they hatched, they had been overheated or chilled—more likely the former. It is sometimes a mistake with beginners, when a colony is being robbed badly, to close the entrance up tight, even though in warm weather, and the sun be pouring down hot. The result is, that the bees become almost suffocated, and, in consequence, overheated; the temperature of the brood is, therefore, raised considerably above its normal degree of heat, and what brood is not killed outright will hatch out into small black-looking little bees. Sometimes these bees will hatch out with defective wings, or none at all. Was not the brood in your hive overheated at some time or other, either from the cause that I have mentioned or for some other reason? The reason why the bees were carrying them out was because they were not perfect bees, not having had the proper conditions for healthy growth. Since reading your letter I am strongly inclined to believe that Mr. Bryan (page 439) had this very same trouble. Mr. B. said

that he had been transferring. If the brood had been exposed to the direct rays of the sun for any length of time, it would hatch out with such bees as those you sent.

DOUBLE-POINTED TACKS AS A CONTINUATION OF THE BOTTOM-BAR.

I have a little invention, or convenience, that I have been using for two years in my hives, in the end-bars of my frames—a projection $\frac{1}{2}$ inch from the bottom, a double-pointed tack driven in as



shown in the drawing. B. If you have never used any before, just try a few and report. It is almost impossible to kill a single bee. The bees can in no wise glue the end-bars to the hive. I have seen hives where

half the frames were stuck fast to the end-board. In handling such frames you have to be extremely careful, or you will kill a lot of bees; and when you kill bees it makes the others mad, and I don't blame them. I will use it on my frames as long as I can raise money to buy the tacks.

F. P. HISH.

Henton, Ill., May 21, 1887.

D. A. Jones has the bottom-bar to his frame project beyond the end-bar a little, answering the same purpose of your double-pointed tacks. You will also find the same thing figured in the old back volumes of our bee-journals. The Langstroth hives were at one time all made with a blind-staple driven in exactly as you have it. After using frames in this way, however, almost every bee-keeper who had them sooner or later pulled out the staples and threw them away. The staples themselves killed the bees and bumped the end of the hive when frames were being replaced, and I believe there were other objections.

HOW TO MAKE A SWARM COME OUT BEFORE SUN-DA; DESTROYING DRONE BROOD.

Having a swarm hanging out much, and fearing it might swarm on the Sabbath, I overhauled it and found only several small queen-cells just started. I exchanged a frame of its brood with one having a capped queen-cell, and to my delight it swarmed the next day. I did fear they would destroy the cell on the comb given them; but after the swarm issued I found it all right.

I practice destroying drones in undesirable swarms. This I have done by shaving off the cuppings and heads, as you have suggested. But lately I have driven a dozen or fifteen sharp large tacks through the sole of an old rubber boot. With this I hackle their heads off. This device is better to work in the depressions in the comb. I often find drone larvæ, and for this I have a pepper-box of fine dry salt that I sprinkle them with. It is all very soon thrown out, and generally filled with honey instead of brood again.

S. L. HASKIN.

Waterville, Minn., June 10, 1887.

HONEY-CASES AND T-SUPPORTS.

Having used the T-tin supports for honey-racks many years past, the very beautiful ones you sent me in last order are such an improvement on any I ever made that I am delighted to know that I can

get such. Your zinc-wood honey-boards are also excellent, and used in connection with the T-tin supported honey-case, with long separators, slotted to set down half way in T's, fill all the requirements of a perfect case.

If tin separators are used, and T tins slipped in on top, to correspond with bottom ones, there is no place for propolis, and the wide frame is of no further use. One serious objection to the wide frame is the additional space between brood-nest and sections. The metal honey-board and the wood and metal is a vast improvement on the wood alone, for this reason. J. W. PORTER.

Charlottesville, Va., May 21, 1887.

ALFALFA AND SWEET CLOVER IN UTAH; ITS CLIMATIC PECULIARITIES AS RELATING TO THE WINTERING OF BEES.

Alfalfa, or, as we more commonly call it, lucerne, and sweet clover, are staple grasses with us, and the best honey-producing plants known in this country. Lucerne is just coming in blossom; and the sweet-clover will begin to blossom in about three weeks, so that we shall have no lack of blossoms until frost comes, which is frequently not till October. Sweet clover—the old garden sweet clover when I was a boy—is, in this country, a prevailing weed, growing along all the ditches, and spreading over all the damp untilled corners of the country, and it is rich in honey, continuing to bloom until frost checks its yield.

There has been a good deal said in GLEANINGS in regard to the care and management of bees that does not apply to bees and bee-keepers in this section of the country. For instance, the moth. I have not heard of one here. Wintering is another subject that does not trouble us. Drones were seen last winter in every month, although it is an unusual event. The winter was so mild that it reached far into spring. It is not unusual here to have April weather in February, and then probably have March in May. The great trick in wintering bees here is to keep sufficient honey in store for emergencies like the last winter, and they come more and more frequently. We can not take as much honey in a single season here per swarm, perhaps, as you can, on account of the open winters, when bees fly perhaps every day in the month of January or February, and they must eat the more for that exercise. I would have sent you, according to your wish, the plant I spoke of, that unfolds its blossom as soon as it breaks through the snow, but it would cost me one or two hard days' climbing up and down to do it, and my legs are getting older than they were when I saw the blossoms.

O. B. HUNTINGTON.

Springville, Utah, June 14, 1887.

HOW BRADSTREET MAY BE USED IN SELLING HONEY.

I have sold comb honey in a town of 2500, in Northwest Missouri, for four years, at from 20 cts. at first to 15 cts. this last year. The last sale I made there was at 13 cts., because honey had been shipped in from Kansas City, and sold for California honey; but I know by the style of package it was from Iowa or Missouri. But it could be shipped and sold so low because it was sold through a commission man. I know I could have gotten 15 cts. for the same honey, and not call it a wrong name either. Bee-men, you are to blame for the low prices of honey. The commission man will sell

quick if he sells for two-thirds the value. Why not sell to the retailer direct? My plan is to go to the bank and get the names of a few dealers in good towns from Bradstreet, then write a postal, and state the net price, quality, and quantity, I have ready to ship; state that I guarantee safe arrival by freight, and trust the party for a short time for the pay. I have sold to parties that I never heard of in this way. A better way would be to have the cash before shipping, but I do not think much would be sold so, for a busy dealer will not take time to hunt up your standing. Extracted honey I would sell at home if possible. I will peddle all my honey before sending to commission men. They may do the best they can, but we are the losers.

The season is discouraging; bees are light, and clover dying from drought. I have hopes of a good linn flow, for the trees are covered with buds.

Hopkins, Mo., June 9, 1887. J. C. STEWART—50.

IS IT PRACTICAL TO FILL COMB WITH SYRUP, AND SELL IT AGAIN?

On page 169, March 1st issue, we read an article entitled, "False Statements in Regard to the Honey Business." Now, it may be that I do not understand what is meant by artificial honey; but do you not think melted white sugar, fed to bees, and stored in comb, would be counterfeit, or artificial honey? Or do you think this is never done? Husband and I think that we have known this to be often done. Honey has been brought to our town so white, or so bluish-white, that our bees could make nothing like it, and it was a wonder to me why it was, until I began to read about the counterfeit in the papers, especially the *Tribune*, two years ago.

Lodi, Ohio, Mar. 7, 1887. AUGUSTA MOHLER.

Yes, white-sugar syrup, fed to bees and stored in sections, would be counterfeit honey; at the same time, it could not be called *manufactured* comb honey. While it is possible to fill combs with syrup, it is impracticable. It has been proven, over and over again, that no one can feed syrup to bees, to cause them to store it in sections, and yet make any profit by the operation, at the prices at which first quality of comb honey is now quoted in the market. I feel pretty sure that the honey you saw, with the bluish cast, was genuine honey. Editors of newspapers seem to think that, if sections of comb honey are clean of propolis, bees' legs, and dirt, such as used to accompany the old-fashioned box honey, the honey is necessarily counterfeit. Some of the nicest comb honey that I ever saw, and which I *knew* to be absolutely genuine, had this bluish cast about it. The fact that your bees could not make honey that was bluish white, does not indicate that the combs were filled with syrup to give it this tint. It simply indicates that your locality, and the flora in your section of country, do not afford honey such as will make comb honey look bluish white. Another thing: If honey be left on the hive until it is travel-stained and dirty, it will have a yellowish cast about it. The honey you speak of was probably taken off the hive just as soon as it was capped over.

AN EXPERIMENT WITH A SWARM.

My first swarm came out on the 21st of the present month, and I settled them on a plum-tree and then hived them. It was the largest swarm I ever

saw. I got them all in and moved them to their place at dark, but the next day they all came out again, and I could not induce them to settle. I followed them about a quarter of a mile to the woods, where they settled in a white-oak tree about 50 feet high. I let them stay there about four hours, and then cut the tree, and hived them nicely and that night I brought them home. They went to work right off. I looked them over to-day and found a nice large hybrid queen, so I think they are all right. I have caught 210 drones from the old American hive, which this swarm came out of since it swarmed.

CHARLES WITTER.

Salem, Ind., May 27, 1887.

DANDELION A PEST IN IOWA.

B. Kenyon, of Oakland, Cal., in GLEANINGS for May 15th, inquires about dandelion. You suggest ten colonies to the acre. We have more than ten acres to the colony, and I think our bees would all starve if nothing but dandelion were accessible. With us, dandelion has almost become an intolerable nuisance. It is everywhere. It takes possession of every lawn, every strawberry-patch. It is war to the death to keep it even in subjection. It is open only two or three hours in the forenoon. I wish there were a commercial value on the root, even if not more than a cent a pound. Good wages could be made here at that price. The seeds germinate anywhere, even on a dry tough sod, and in a year or two the roots are down from six to twelve inches. It is the invincible. We have it by the thousands of acres.

DRY WEATHER.

We are suffering from a wonderful drought. My experience of thirty years in Fayette Co., Iowa, has never seen any thing like it. We usually suffer from excessive wet. We have had no rain of any consequence for a year now—only light showers at long intervals. Unless we get rain, the honey-crop must be a failure. Next to dandelion we have white clover. Indeed, in our gardens and strawberry-patches it is a question which shall take possession.

B. F. LITTLE, 107-70.

Brush Creek, Ia., May, 1887.

Friend L., they already make use of dandelion down East, and pay a big price for it besides; but it is not the common dandelion that is a pest in your vicinity. We have sold it to some extent in our town, and it already commands a pretty good figure.

EXPRESS COMPANY REFUSING TO RECEIVE BEES.

It appears that we are about to have trouble in shipping bees. On the 2d inst. I shipped two colonies on the packet to Evansville, Ind., to have them expressed to Michigan. The express agent refused to take them until the clerk guaranteed the payment of expressage. About the same time I had Mr. Hughes, agent here for the boat, to ship one hive to St. Louis, to have it expressed from there to Washington Territory. On the return of the boat to Johnsonville, on this river, the captain received a telegram from the boat agent at St. Louis, which said, "Express refuse bees unless prepaid \$30. See Hughes, Clifton." Under the circumstances I could only instruct the captain to bring the bees back and send the man the \$4.00 paid for them. When the man ordered the one colony he wrote me that he would want ten colonies more if this one was satisfactory when received.

Now, friend Root, can't you and others do some-

thing to help out bee-keepers who have a surplus of bees and can not get rid of them in any other way than to brimstone them? I prepaid ten colonies in hives to Indianapolis, which went through at quite moderate charges. I do not know how we can advertise bees, and agree to prepay the express, as we can not tell where the orders will come from. I have shipped bees to different States, from Nebraska to Maine.

C. WEEKS.

Clifton, Tenn., May 9, 1887.

Friend W., I do not think there need be any apprehension of trouble in the direction you mention. We have for years been obliged to guarantee express charges on bees and every thing else we ship, or else take the risk of delays. In regard to the bees you wanted to ship to Washington Territory, had you asked your agent about it before putting them up he would have told you the charges would be enormous, and would have to be prepaid. We receive orders to ship goods by express every few days, where the result would be disastrous if we undertook to ship as directed.

A SUGGESTION IN REGARD TO THE TREATMENT OF FOUL BROOD, AT THE HOME OF THE HONEY-BEES.

I have just finished reading Our Own Apiary, on page 482. It appears to me, if I understand your treatment of foul-broody swarms, that you destroy all the brood in the infected swarms. Why not save all the brood that will hatch, by giving the brood from two or three infected swarms to one in the same condition, until the brood is hatched, and in this way save a good swarm of bees from the combs of two swarms treated? There can be no danger when honey is coming in, as at present, only a delay of a few days.

L. C. WHITING.

East Saginaw, Mich., June 18, 1887.

Your suggestion might be put successfully in operation under some circumstances; but in our own case, the policy of destroying all the brood as soon as the disease makes itself apparent I think is the wiser one. In the first place, while foul brood exists among our bees, bees are of almost no value whatever to us. Of course, we can not fill orders for bees and queens from the home apiary; and as our locality is already overstocked, we can not run them for honey; so you see our apiary at present, instead of being a source of income, is a source of expense, and the few hatched bees which we might save in the manner you mention would not begin to cover the risks attendant upon such practice. As long as there is a possibility of danger by leaving infected brood anywhere in the apiary, I can not see that it is wise, at least for ourselves, to stack the infected brood in a colony by themselves. Another thing: We have been experimenting lately to determine whether foul brood would ever cure itself. We left some colonies from a week to two weeks; and while the disease apparently disappeared for a time, sooner or later it reappeared. While we were making these experiments we had something like a dozen colonies that were diseased at one time, and which had not been treated. It was easy to observe that foul brood broke out almost everywhere in the apiary during this time. Since

we have adopted the policy of treating the colony immediately, foul brood is now getting to be under our control, and only an occasional colony shows evidences of the malady. The point is, friend W., that, while you have a number of diseased colonies in the apiary, the intermingling of bees from one hive to another is almost sure to carry the infection everywhere; so I think the policy of taking diseased brood-combs, and allowing the bees to hatch out, and putting said brood-combs in a colony by themselves, is as unwise as it is dangerous.

WHY WERE THE QUEENS MISSING?

In March I had 15 colonies of bees (Italians) to put out. They had all wintered well. All swarms appeared to be strong, and had plenty of honey. After they had been on their summer stands about a month I noticed that two of the colonies did not seem to be making the headway that the others were. I examined them and found that they were queenless, with a small patch of brood that might have been 18 days old, and without any queen-cells. Since that time I have lost five more queens, making seven in all. The queens disappeared first, and I think there is hardly a possibility of their having gone out in a swarm. In all cases from 10 to 20 lbs. of sealed honey was left in the hive. What was the cause? After the bees were set out, the weather was mild, the bees flying every day.

Mazomanie, Wis., May 29, 1887. P. F. STICKNEY.

Although I have several times noticed queens disappearing from a good many hives, all at about one time in the spring of the year, I have never been able to account for it. It usually occurs when bees have what is called "spring dwindling," and every thing in the hive seems to be upset, as it were. They almost always die when there is only a small patch of brood in the hives, and not enough bees to cover and care for the brood.

THE DOOLITTLE QUEEN-CELL PROTECTOR.

I came in the house this morning and said to my wife, "Well, Doolittle's queen-cell protector is a daisy—one of the best inventions for a queen-breeder." And I must say I was not a little surprised when, in a few minutes after, I read in the last issue of GLEANINGS of your partial failure. It has worked to perfection in every instance with me. I was very particular in every instance to fit the cell in the apex of the cage, so no bees could get at the side; then I removed one frame from the hive and hung the cage in the space, so it had plenty of room without pressing the cage. Perhaps this was unnecessary. Then I was sure to have the colony or nucleus queenless from 12 to 24 hours before I introduced the cells. I consider it a bonanza.

FRANK A. EATON.

Bluffton, Ohio, June 17, 1887.

Thanks, friend Eaton. We are very glad to receive your report; the more so, because our experiments with the Doolittle queen-cell protector seem to be a partial failure. I can not very well understand now why we did not succeed better. I have this to say, however, that the protectors were tried during a dearth of honey, after apple-bloom and before clover—a time when, above all others, bees seem most disposed to tear down queen-

cells. There were something like two or three dozen queen-cells tried in the protector, and yet out of this number only two hatched successfully. In former seasons we have not had such poor success with queen-cells hatching, even without the protector. It is possible that the peculiarity of the season has much to do with the results; and we don't therefore propose to abandon trying the protector because we at first seemingly failed. We shall give some to Neighbor H., and let him try his hand at it. We hope to give, ere long, a better report, because we feel pretty sure that such a man as Mr. Doolittle would not say it worked successfully unless it did.

DO KING-BIRDS SWALLOW THEIR VICTIMS?

In GLEANINGS of May 15, 1887, p. 395, W. A. Wickham asks the question, "Do king-birds," or, what I have always heard them called, bee-birds, "swallow their victims?" and seems to think they do not. I killed one to-day that had four drones in his crop, but no workers. I killed a frying-size chicken that had 64 drones in its crop, and no worker-bees. In May 1st issue, p. 357, Grant Scofield thinks chickens catch worker-bees. I think that is a mistake. I have noticed them catch drones often, but never a worker. They know the difference as well as we do.

I. T. McCracken.

Rosebud, Ala., June 15, 1887.

Thanks, friend C. While recent reports seem to indicate that king-birds do not swallow their victims, yours goes to prove that they do—at least sometimes. As there seems to be a diversity of opinion in regard to this matter, we should be glad to hear from our readers; that is, do king-birds swallow worker-bees, or do they simply crush them in their bills, extract the nectar, and then cast the robbed victim away? Grant Scofield, to whom you refer, said that, on dissecting the crop of a chicken, he discovered that it had eaten ten times as many workers as drones. The fact that you discovered no workers in the crop of the chicken you dissected does not prove at all that chickens may not sometimes eat worker-bees. It simply proves that *your* chickens did not.

DAMP AND DRY AIR; A WELL THAT TELLS WHEN IT IS GOING TO RAIN.

Some time ago the question was asked, which was heavier—damp air or dry. One of my little boys who reads GLEANINGS to me while I am busy doing other things, said, "Why, pa, if damp air is the heavier, why don't the clouds come down? It must be awful damp up there." Does not the mercury in the barometer rise in fine weather? If it will interest you any, I will give you an account of a singular well that we had that would foretell a change in the weather sooner and more accurately than our barometer, which was a good one too. I have asked many for an explanation of its peculiar action, but could never get any satisfactory answer. I can only explain it by the change in the weight of the air.

Hondo, Texas, March 31, 1887. GEO. E. HAILES.

Friend H., your boy's suggestion seems to be a clincher. You may thank him for me. By all means, tell us about the singular feature of your well. You know we have been discussing wells and the temperature of well-water for some time back.

MYSELF AND MY NEIGHBORS.

Whether therefore ye eat, or drink, or whatsoever ye do, do all to the glory of God.—I. COR. 10:31.

SINCE my last talk to you, my dear friends, I have been learning some lessons: but the memory of those lessons is very pleasant. Satan's evil suggestions seem to have mostly passed away, and in place of them these lessons with pleasant memories come. I am getting *better acquainted* with the small boys than I ever have been before, yet almost all my life I have been much with them and among them. The results of getting acquainted are just like those I have so many times told you about. When we understand each other better, we have better opinions of each other. A few days ago a boy was set to work hoeing weeds out of the strawberries. It was after a rain, and the ground was very soft and mellow, and I don't know how anybody could ask for a nicer job. Why, the work itself is so extremely fascinating that I would go out among the plants, and work after dark as long as I could see, just because I loved to work in the mellow soil, and see the plants grow. I was busy, however, and didn't look after my young friend that morning as I intended to do, and he made very little progress with his work. Satan whispered that any one who would take pay for such a miserable *show* of being busy should be sent home forthwith, without wasting words or any more money in the attempt to make him useful. I was beginning, however, to get a glimpse of these boys' peculiarities and dispositions; and so instead of listening to Satan I went and got a hoe with a great big wheel attached to it. The wheel is as large, or larger, than a good-sized hoop, and it was a very good tool to work with in good ground. I took him off to another field, and told him I wanted him to cultivate the beets with this machine. I found I had made no mistake. The tool suited his boyish spirits, and pretty soon he was all in a glow of perspiration from the violent exercise, and he had accomplished a man's work, and was ready for more of the same kind. I told him I was afraid the work was too hard for him: but he insisted that it was just what he liked. From that time until this he has been a valuable hand, but I have been careful to give him some kind of a job that would enlist his energies and abilities.

A good many times it is desirable to send something after the wagon, that is somewhere on the streets of our town every afternoon. Well, a good many boys would be gone hours, and perhaps come back and not find the wagon at all. One, in fact, wheeled a heavy load around the town from nine o'clock till noon, and did not find the wagon even then. I gave him careful directions and had him try his luck another day; but it was about the same. He hadn't any faculty for finding the wagon, and I had to decide that it was a mistake to send him on such an errand. This same boy, however, did exceedingly well at other kinds of work. Well, we soon found out that the boy who

took such a fancy to the wheel-hoe would find the wagon *any time*, in short meter, and he would do it with very meager directions. When questioned how he always found it so quickly, it was discovered that he had rare observing powers. He is one of the boys who know everybody, and every thing that is going on. We have another boy who will never earn his salt picking peas by the bushel. He is, however, worth almost as much as a man in any kind of work that can be done with horses. He has made friends with one of the biggest and stoutest horses on the place, and he will perform feats with this horse that I would not think of attempting myself. One of them is to take the horse up into the bank-barn and make him turn the wagon around when the horse has only a couple of yards between his fore feet and the edge of the floor over the bay. I would not have permitted him to attempt it had he not been doing it before I knew it. He loves the horse, and the horse has such confidence that he will not get him into trouble that he obeys every word the boy says to him. I hardly need tell you that he governs the horse entirely by kindness, and by constantly appealing to the intelligence of the noble animal. This boy has made me love horses more than I ever loved them before.

A short time ago our people took it into their heads that they wanted me on the school-board again. At first I declared I could not possibly take another burden upon myself; but then, again, came the thought, by accepting the office I might possibly have opportunities for feeding Christ's lambs that I would not have otherwise. I did not think of the text at the head of this talk to-day, but the spirit of it came into my mind, and I decided to accept the call. Very soon it became necessary for us to visit the first primary school; in fact, our large union schoolhouse is beginning to prove too small for the swarms of little ones who are now ready to be taught. I knew the lady who had charge of this department, for she is an earnest Christian, and I had met her several times at our teachers' meetings. Now, I haven't been in a primary school before for a good many years. If the same is true of yourself, my friends, I would advise you to take time and go to school some day with the little folks of the household. There were 52 pupils in her room. They are the same kind of little folks that I often have around me, teasing for a job; in fact, some of them who work for me mornings and evenings were right before me.

The first thing that attracted my attention on coming into the room was, that I did not see any of the tired, wearied looks that I used to see on the faces of small children when it was time for recess, or time for school to be out. These little folks, on the contrary, looked as if they had been having fun, and expected very soon to have some more. I soon decided they were not disappointed either. Miss Smith has made the care of children a study for many years. She not only is conversant with all that has been done, but she has invented some plans of her own to make teaching accord with the

natural restless dispositions of these little folks. They were hardly asked to sit still at all, but at the same time there was such a system about their motions that the school was not a noisy one. Before some little urchin began to feel a disposition to twitch around, the whole school twisted around in regular order, in obedience to some signal from the teacher. Then they stood up; then a little hymn was sung that required them to swing their arms. A great part of the exercises was child's play—yes, a good deal of such child's play as you see going on with the baby, and those a little older. Then they read a few sentences together. To prevent them from getting into a mechanical way of reading the lessons without looking on the book, she had them read backward. Pretty soon she asked who would stand up on the floor and sing for the gentlemen. I thought possibly that three or four among the whole school might volunteer. To my surprise, almost every little hand in the school was raised, and you could see by their faces how they regarded the two who were selected as the *lucky* ones. What pretty little childish songs those were! Children tire very quickly of almost anything. They will pick peas awhile, they will pull weeds awhile, and so on with a great many other things. But if you want them to work well you must change work often. Miss Smith seemed to recognize this, so she had a variety of primers that occasionally took the place of the standard schoolbooks. The primers were wisely edited and wisely chosen, and an involuntary "thank God" welled up as I turned over the one I held in my hand. Thank God, that strong pure-minded men and women were giving their best energies to the work of understanding childish minds, and ministering to childish tastes. What a thrill of joy it gave me to find that Miss Smith was working in the same line I had been, and that she was recognizing, as I had been, that in the care of these little ones we may apply the text, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

I remember the time when I was required to sit for hours together on a hard bench, without any desk before me, without even a slate and pencil. If I shuffled my little feet so as to make a noise, I was in danger of the master's ruler. My dogs-eared First Reader was the only thing I was permitted to look at, although I had read every page of it until I could almost repeat it off by heart. I had noticed that the little folks who worked for me were always ready to go when it was schooltime. They never seemed to dread going to school. There was an air of cheerfulness I had never understood until I visited that school. I tell you, my friends, that, before those children are ten years old, a foundation will be laid for a good solid Christian character that will go a great way toward shaping the course of their future lives. I am told that like improvements are being inaugurated all over our land. Thank God, that in this land of liberty we are beginning to recognize the importance of commencing with the chil-

dren. Thank God, that the tyranny (and I don't know but it is right to say cruelty) that has been exercised in teaching and managing these little ones is passing away. It seems to me to be a glimpse of the new heaven and new earth that is promised in the Scripture. People give me credit for ability in interesting and keeping busy these little folks. My friends, I don't deserve half the credit in that line that has been accorded to me. I am ashamed of myself when I think of my shortcomings in this direction. By fits and starts I have, perhaps, been trying to take up these tasks for the glory of God; but it is only now and then that I have had glimpses of the possibilities in this direction. It begins to dawn on my understanding now just a little. I am beginning to understand the field unexplored that is contained in the words of the little text at the head of this talk, "Whether therefore ye eat, or drink, or whatsoever ye do, do all to the glory of God." I suppose the latter would include making garden, and hiring the juveniles to catch potato-bugs, transplant celery-plants, pull weeds, etc. I repeat, "Whatsoever ye do, do all to the glory of God." It may be true, there are not many in this world who apply this rule to their every action. It may be true, that humanity has not come up to very great possibilities in this line as yet; but for all that, there are glimpses of what even *one* Christian life might be, that sometimes almost bewilder me. Oh if my poor life could only have more of that spirit in it! Lord, help us! May the great Father help you, my friends, who are hungering and thirsting, and who are longing to see these little ones led in wisdom's ways! Pray for me, that I may do my work better; and while we learn to have a wider and broader charity for small boys who are inclined to shirk over the tasks we give them, may God help us to have a wider and broader charity for *all* humanity, old as well as young!

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

APIFUGE.

THOSE who take the *British Bee Journal* have doubtless noticed considerable said in regard to "apifuge." The derivation of the word is from two Latin words—*apis*, meaning bee, and *fugo*, I route, I drive, or I scare. Literally its Anglo-Saxon English name would be "bee-scarer," answering the same purpose, I suppose, as the scarecrow, so familiar to farmers' boys. It is claimed that a few drops of this liquid, sprinkled on the hands and well rubbed over the flesh, will make the bees loth to sting those parts so covered. In other words, they will be so scared that they won't dare to sting. It is even stated by some that it will dispense largely with the use of smoke. My curiosity having been aroused as to the merits of this wonderful stuff, I sent for a couple of bottles of it. A few days ago they arrived. The liquid smells

not unlike wintergreen and tansy ; but whether or not these enter as ingredients, I am not prepared to say.

Well, my hands having been duly smeared with this apifuge as directed, I selected a hybrid colony which had a dash of Cyprian blood in it. I opened the hive, without smoke. As honey was coming in freely, they were not disposed to act very vicious. I placed my hands over the bees, but could not notice that the liquid had any effect. Had they been disposed to sting, as I have seen them sometimes, I do not think they would have hesitated to stick their little weapon into my hands, apifuge or no apifuge. I next poured a few drops of the liquid down among the bees. They immediately sent up a wild humming in the vicinity where the liquid had spattered. Two or three bees received a drop or two. These latter died immediately from the effects of the stuff. I then dropped some of the liquid at the entrance. The incoming bees, laden with honey, as soon as they approached within an inch or two of the alighting-board, hovered about for some little time. After considerable circling they crawled into the entrance. I am convinced of this much: That the liquid is exceedingly offensive to them — that is, before it is dried. I notice that one or two of the correspondents of the *B. B. J.* claim that bees which at first seemed inclined to be hostile, on being presented with the odor of the apifuge became immediately quiet, and seemed to regard the hands of the intruder with kindly intent; and not only that, but the odor was so soothing that the bees apparently *enjoyed* it. I must say, however, that my experience with it is quite different.

When the hands are freshly besmeared with the apifuge, the bees will be repelled to a slight extent; but when the liquid is dried there is no appreciable effect on the bees. I have since tried it in the Swamp Apiary upon some cross hybrids. Did they become quiet under the benign influence of the apifuge? Not at all. On the contrary, I was obliged to start for the smoker. Whatever may be the merits of apifuge, I can not but think that the behavior of the apiarist, and his control of his nerves, has more to do in the prevention of stings than any liquid that can be compounded. If the apifuge has any effect whatever upon the hands of beginners it seems to me it would make them feel more secure, and so give them better control of the nerves.

FLAT-BOTTOM VERSUS NATURAL-BASE FOUNDATION.

There seems to have been a little diversity of opinion in regard to the two makes of foundation as above. By some it is thought that flat-bottom foundation, inasmuch as it is a deviation from nature, is not so economical as the natural base. Our good friend Mr. T. F. Bingham, however, seems to think — or, at least, so expressed it a few months ago to the writer in person — that the flat-bottom foundation, as it had so little side wall, was better for the surplus department; that when the comb, on being drawn out and eaten, the disagreeable

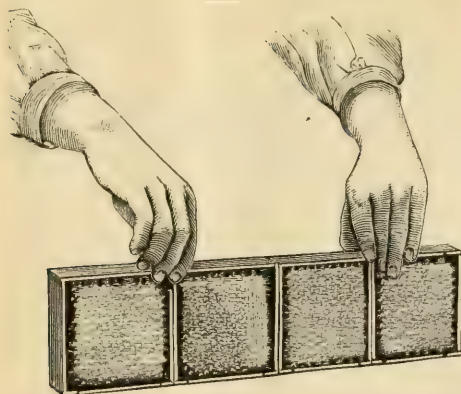
"backbone" could not be detected, or would not be so apparent, as with the natural-base foundation.

A few years ago we made some experiments that seemed to prove then that bees had to waste considerable valuable time in converting the flat-bottom cells into natural-base cells. As we have sold considerable flat-bottom foundation this year, I determined to experiment again, at least on a small scale. As honey was not coming in to any great extent, I selected the strongest hybrid colony we had. I contracted the brood-nest down to only two frames. I am aware that, for general purposes, this is carrying contraction too far; but for my own purpose I desired to have the bees in question store into sections almost every particle of the little honey that they had gathered, in order to induce them to pull out foundation for the purpose above named. Two T supers were prepared and filled with sections, $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{4}$, no separators being used. Half of the sections were filled with full sheets of our thinnest flat-bottom foundation. The other half was filled with full sheets of our thinnest natural-base foundation. When the sections were put into the crate they were arranged in alternation, in order that we might the better compare results as the bees began to pull them out. We waited three or four days before honey came in enough for the bees to make any demonstration "upstairs." Just as soon as they did so, however, I watched them closely. Each section having flat-bottom foundation in it was marked with a cross, so that, as the work progressed, I could easily distinguish the kind of foundation which we put in. Some sections were filled out a little in advance of others. Which sections do you think they were? They were those which had no cross-marks on the tops (natural base). Although the sections bearing the crosses had an equal advantage with those next to them, the bees, instead of pulling out the flat-bottom foundation immediately, tore holes in it and remodeled the base before they attempted to draw it out. This consumed considerable time, and the result showed quite plainly that the bees would convert into comb, in less time, foundation having a natural base than foundation having flat bottom. A second examination has confirmed me in all the above statements.

It may be, however, that, if I had the opportunity of conducting the experiment on a larger scale, I might see little if any difference in favor of either; at all events, Dr. C. C. Miller, having purchased some 50 lbs. of the flat-bottom foundation, has this same matter under experiment, if I am correct.

HOW TO HANDLE SECTIONS FILLED WITH HONEY.

During Dr. Miller's late visit, among other little hints that he spoke of in connection with our pursuit he mentioned a little trick in handling sections filled with honey, so as to pick them up rapidly, and yet with entire safety to the nice and evenly filled combs. From the engraving on next page, the reader will catch the idea.



METHOD OF HANDLING SECTIONS.

Grasp the two sections, placed as seen in the engraving, in such a way that the thumb and finger cover the two upper corners adjacent to each other. You will observe that you can thus with one hand pick up two sections; and as you proceed to put them to one side, the two pairs may be placed together compactly. This method of picking up sections is, perhaps, in common use among not a few of our readers; but among some of the friends, especially beginners, the idea may prevent them from damaging the sale of otherwise marketable honey.

FOUL BROOD.

Our old friend the enemy is still with us, and does not seem disposed to give us any rest this season. We are still experimenting on different methods of cure. We have now under experiment the plan recommended by C. F. Muth, of Cincinnati — that is, to spray the combs with salicylic acid in solution. As yet we have not reached any definite conclusion in regard to it. We have also under contemplation Frank Cheshire's phenol cure. There are so many factors which must be taken into consideration, and which, in spite of us, seem determined to upset our efforts in getting exact results, that we will not report just at present.

FOUL BROOD, BY A. I. ROOT.

ALSO SOMETHING IN REGARD TO PUTTING UP AND SHIPPING BEES BY THE POUND.

THE friends will notice, perhaps, that Ernest has told all about foul brood in our apiary; and he has covered the ground so well that I have but a single point to make. It is this: Although we have been at work nearly a year with this pestilence, there has at no time been more than a few cells of foul brood in a comb. Most cases that we have treated by fire have had only from three or four to a dozen cells in the hive. In fact, all the foul brood that has been in our apiary has done no damage practically whatever. Our colonies are strong, healthy, and prosperous. They had never wintered so well in the world as last winter. One might ask, "What is the use of making all this fuss for nothing?" I reply, "Only that we may by no

possibility send foul brood to any of the rest of you." Finding only two or three cells in the Swamp Apiary was enough to condemn it, so far as using the bees to fill orders was concerned. When we succeed in stopping this occasional breaking-out of it we may accomplish something of benefit to the world. From what I have seen of it, I think it quite likely that it might be a *considerable time* before it produces any effect so far as honey-gathering is concerned at all.

If we use none of our bees and queens, how, then, do we fill orders? Well, the responsibility fell first on Neighbor H., whose apiaries are several miles distant. When we began to draw on his apiaries, however, until they seemed in danger of ruining his stock by taking away too many bees, we were obliged to hunt up nice stock among our neighbors. He found a place a few miles away, where there were nice bees, originally from our own stock, and I asked him to give an account of his trip, which he does as follows:

D. L. JONES'S APIARY; THE ROADS, ETC.

After making many promises to visit Jones's apiary (not D. A. Jones, of Canada, but D. L. Jones, of Le Roy, O.), I started with a buggy full of bee-cages, and about the time I started it began to rain; and as the honest farmers had been working out their tax due the State of Ohio, when it was so wet that they could not work anywhere else, I had the full benefit of our new system of road-making. I found a nice pile of sods scraped up in the center of the road, that looked like a row prepared to set out sweet potato plants. As I had but one horse it was impossible to drive in the center of the road. I had to go on one side, with two wheels on the ridge and two in the ditch, with one side of the buggy two feet higher than the other. Don't do so any more, brother farmers of the State of Ohio. We can afford to be cheated out of the tax, better than the suffering public can afford to bump over the roads after you have scraped sods in them.

But I got there after a while, and found an apiary of 37 colonies of nice bright Italians. The hives were in three rows, on a well-kept lawn, and so full of bees that it was nothing but fun to put up pounds of bees. I got to work just as the noon whistle blew, and at 15 minutes past one I had 25 pounds of bees and 12 queens tacked up in 23 separate cages.

This is the moral that Bro. Root wants you to draw from this story: That, with the modern appliances for handling bees it does not take long to weigh and put up quite a good many orders, provided you have the bees and the tools to do it with.

H. B. HARRINGTON.

Medina, O., June 20, 1887.

There is just one point I wish to make in Neighbor H.'s communication above. Some years ago Mr. H. A. Burch gave as a reason for not filling his orders, that he had so many of them he could not get around to all his business, and it was out of the question to find competent help to put up the bees and send them off. Mr. Horn has lately made the same or a similar plea. Now, I do not want to be uncharitable, but I can not understand how any man could ever be swamped by having too much business, especially business where he gets cash before

he sends off his goods. Now, then, to the point: Neighbor H. drove several miles away from home, jumped out of his buggy, put up 23 separate packages of bees containing queens, and did it all in 75 minutes. I do not believe I could do half as well as that myself. You see, he had to open the hives, hunt the queens, shake the bees from the combs, weigh out the required amount, be sure the queens were put in, then close up the hive. Simplicity hives and metal-cornered frames were probably a large factor in enabling him to do this. Suppose, now, a man should have such a run of business that he had four or five hundred dollars' worth of orders for bees and queens on hand at once. How long would it take him to fill them all, providing he had the bees and queens from which to fill orders? The above also speaks well for the cages, tunnel, and other arrangements that I invented several years ago for the purpose of making this kind of buying and selling possible. The 23 cages of bees which he put up in an hour and a quarter are worth over \$50, at our regular retail prices.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 1, 1887.

Blessed is the man unto whom the Lord imputeth not iniquity, and in whose spirit there is no guile. PSALM 32:2.

OUR subscription-list now numbers 7491, a gain of 177 within the last month. Thanks.

GLEANINGS AS AN ADVERTISING MEDIUM.

We are pleased to append the following from one of our advertisers. With our large and increasing subscription-list, a responsible advertiser, who offers good goods at reasonable prices, can hardly fail to bring some sort of return. If you do not hear from your adv't, either your goods are not in demand or the price is too high.

The little advertisement in GLEANINGS of June 1st brought me orders for queens from ten States—Pennsylvania, New York, Virginia, New Jersey, Michigan, Illinois, Iowa, Kansas, Nebraska, and Ohio, and I have been compelled to send some queens that I did not wish to, and could not well afford to, in order to fill orders. It seems that, from the orders received, GLEANINGS is a good advertising medium. Please announce that I have no more queens at present. ELIAS COLE.
Ashley, Ohio, June 24, 1887.

WATERBURY WATCHES—A NEW ARRANGEMENT.

THE manufacturers have recently decided not to allow anybody to offer Waterbury watches as premiums for getting up clubs, or for any other purpose. The new arrangement is, that all Waterbury watches shall be sold for \$2.50 each, no more, no less. This is to be the price of one or the price of a hundred. Bona-fide dealers in watches get wholesale prices, as a matter of course; but all dealers are to buy of the factory direct, and no middlemen. The watch, in its recently perfected

state, is simply a wonder for the insignificant price of \$2.50. For my own use as a timepiece I would rather have it than any watch I ever before carried, at any price, and I have carried watches that cost \$100 or more. All the Waterbury watches we sell are tested by myself individually, by carrying each watch in my pocket one whole 24 hours.

THE HONEY-CROP FOR 1887.

At this writing, June 30, the entire yield from white clover has been a little more than enough to keep up brood-rearing; and reports from other localities are, as a rule, a good deal the same. Basswood opened a little earlier, and is now nearly in its height, and honey is coming in fairly; but it is hardly probable there will be a full crop in many localities. In view of this I think I would not be in haste to get rid of nice honey.

JAPANESE BUCKWHEAT.

Now is the time to sow buckwheat for grain and for honey, in most localities. It is true, it can be sown later, and give a crop of grain if the frost holds off; but it is always more or less risky. Better get it in some time in July, if you can. We have an acre of the Japanese that is looking beautiful now in the morning sun. The first leaves are about the size of a quarter-dollar, and the piece, to me, is a thing of beauty when I first get up in the morning. We have secured another lot of the seed, and can furnish it at the prices given in our issue of June 1, page 447. Buckwheat does nicely on ground where early potatoes have been dug. Every bee-keeper should test his locality for buckwheat, and I think it will pay him to make a small test of all the different varieties. Buckwheat can almost always be got in on land from which a crop has just been taken, so it costs comparatively nothing, except preparing the soil and sowing the seed. With us it pays to make the ground rich, and work it up extremely fine.

MR. THOMAS HORN.

I DO not see but that we shall be obliged to have an article with the above heading in every issue for some time to come. I hope, however, the articles may grow shorter and shorter. As we go to press, not one single individual has written us that he has received a note from Mr. Horn. A letter from his vicinity, however, informs us he has had bad luck, and left the place to hunt for work. We might have supposed that Mr. Horn meant to be straightforward and square, but was simply unfortunate. His recent positive statement, however, to the effect he had sent notes to all he was owing, when he hadn't sent any note at all, seems to indicate he is not now (if he ever has been) even a truthful man. This seems to put rather another phase on the matter of first receiving the advertisement of a dishonest man and a swindler. In that view of the case I feel as if I ought to make some arrangement with the friends who have lost by sending him orders. It may be well, however, to wait a little. Meanwhile, is it indeed true that not one of you, my friends, have received even a note from Mr. Horn?

MR. K. P. KIDDER.

WE have had quite a few inquiries in regard to the standing and responsibility of this gentleman; but I am glad to say that we have had no complaints from any one who has ever sent to him for goods. Many of his advertisements, however, promise a good deal for only a small sum of money.

We have sent him the money once or twice, to see whether his goods came up to representation. The money was returned, saying he was at present out of the article. The advertisement below we find in the *Farm and Fireside*, Springfield, O.

TWO THOUSAND DOLLARS A YEAR KEEPING BEES on new plan, and no stings. Also, how to raise good pork at 2 cts. a pound, net, without grain. Particulars sent free. Address K. P. KIDDER, Burlington, Vt.

The heading is, as you must admit, exceedingly taking, and we wrote at once and asked Mr. Kidder to please give us further particulars; and as the pork we raise costs us quite a bit more than 2 cts. a pound, we are quite anxious to learn all about the new plan. Up to date, however, no reply has come to hand. Have any of our readers been more successful?

IS THE BEE-STING USED FOR ANY OTHER PURPOSE THAN AS A WEAPON OF DEFENSE?

Our good friend M. H. Tweed, of Allegheny City, Pa., sends us the following, clipped from the *Pittsburg Chronicle* of June 7:

At a meeting of the Physiological Society of Berlin, it was given out as a fact, that when the bee has filled his cell, and has completed the lid, a drop of formic acid, obtained from the poison-bag connected with the sting, is added to the honey by perforating the lid with the sting. This formic acid preserves honey and every other sugar solution from fermentation. Most of the insects that have a stinging apparatus similar to that of bees are collectors and storers of honey, so that the sting has a double function—it is a weapon and a pickle.

We are not much acquainted with the Physiological Society of Berlin, but it seems to me they had better be sure their facts are facts before they give them out. The item above will probably have some such a run as did Prof. Wylie's "scientific pleasantry;" but until somebody can give us some positive facts, gleaned from direct observation, we shall refuse to believe that honey needs to be pickled, and that the bees use their stings to pickle it before it will keep without fermentation in the hive.

STILL ANOTHER BEE-BOOK.

WE have just received from Ivar S. Young, of Christiana, Norway, a copy of his work on bee culture, entitled "Practical Manual of Bee Culture." The book contains 100 pages, 5x6 inches in size, German type. The printing is exquisitely beautiful—in fact, the best we have seen in any bee-book, with the exception of Frank Cheshire's. In the book there are 61 cuts of the highest order of engraving, printed to correspond. Those representing the different parts of the bee; as well as those showing parts of bee-plants, are beautiful indeed. One thing which seems odd to American bee-keepers is the "heavy part" which straw plays in the apiculture of Europe, even as far north as those countries intersected by the Arctic circle. On the other hand, some of the most universally adopted principles of American apiculture are alluded to by our European friends more as things of curiosity than as something demanding serious attention. In one respect, however, we think they are far behind the age; and that is, in the use of the tobacco-pipe while handling swarms of bees. Here, at least, we are sure tobacco is a detriment; and would it not be just as well, friends, not to go to the expense of engraving so useless an appendage, even though you should prefer to use it while working in the apiary? The price of the book is not stated. The language is Norwegian.

BEES AND FLIES ON THE WINDOWS.

My friend, are there any dead bees or dead flies lying on the sill of any of your windows, in the house, garret, down cellar, on the window of your

honey-house, the windows of your shop, barn, or any out-buildings that contain windows? If so, let me tell you that it is against the laws of God, if not the laws of man, to let the little creatures die thus, when the matter is so simply remedied. Raise the window just enough so the bees can creep under the lower edge of the sash, and they will get out themselves. The same is true of flies. A great many times I have seen big green flies spotting and soiling the windows badly, when just a little aperture at the bottom of the sash would let them out into the open air. Why, it is a pleasure to me to raise the windows just a little, and let the bees, flies, and other insects shoot out and enjoy their God-given liberty. Another thing, it is painfully untidy to me to see dead insects accumulating on window-sills. I presume that, as a matter of course, a good wife will take care of the windows in the house unless it is some room that you claim especially for your own. But please do take time enough yourself to see to the other buildings I have mentioned. When I go into any of the rooms of our factory, and see a great lot of bees on the window-sill that have buzzed themselves to death while big men and women stood right near day after day, who could not take time or thought enough to let them out, it has almost made me feel indignant. I try to attend to all of these things; but sometimes when we have severe storms it is necessary to shut the windows clear down, and after that nobody seems to take pains to open them unless I see to it personally. Now take a careful look, will you? and see if there are any windows that are murdering and torturing God's creatures in your vicinity. As a matter of dollars and cents it will also pay you, for it is a great deal cheaper to let out the insects than it is to scrub off the stains that they make on the glass; for I suppose every window gets scrubbed once in a year or two, (?) if not oftener.

SPECIAL NOTICES.

HONEY-JUMBLES.

THE last ten barrels of these delicious cakes for lunch are greatly superior to anything we have had heretofore. The manufacturers seem to have beaten themselves this time. As tasting is, however, much ahead of any description, we will send a dozen by mail, as samples, on receipt of 20 cts. If you want more, you can have a whole barrel for an even \$5.00.

FULL COLONIES AND NUCLEI AT GREATLY REDUCED PRICES.

THE bees and nuclei referred to on page 347, issue for June 1, will be sold during this month at a discount of 10 per cent from prices given there. This will make a full colony of full-blooded Italians for only \$4.50, and a two-frame nucleus, tested queen, \$1.80. Surely they should all go off at these prices where anybody is in want of bees. Remember, this offer is only on this special lot, to be shipped from Quitman, Nodaway Co., Mo. We guarantee them to be fully up to representation.

CIRCULARS RECEIVED.

The following have sent us their price lists:

Stair & Cather, Ashville, Ala., send us a 4-page list of Italian queens.

H. H. Brown, Light Street, Pa., sends us his list of queens, bees, foundation, etc.

J. H. Howard, Holme, England, sends us two catalogues of every thing pertaining to bee culture. They are very attractively printed, one being lithographed.

TOBACCO COLUMN.

TOBACCO AND THE HONEY-TRADE; FALSEHOOD VERSUS TRUTH.

I HAVE taken much interest in your Tobacco Column. If our papers over the country generally were as ready to publish such solid truths in regard to the evil effects of tobacco, and keep them before their readers as they are the slanderous report about the manufacturing of artificial honey, they would confer an everlasting blessing upon mankind and womankind. I say womankind, because, with us, the snuff-box with very many of the women is as indispensable as tobacco in its other forms is with most of the men. Surely, if more such stubborn facts as given in this timely piece were known throughout the land there would be a wonderful let-up in the use of this vile stuff. On the other hand, so much has been said of late about the adulteration of honey, that, again and again, right in our little town of Uvalde, where honey is comparatively cheap (extracted 5 to 7 cts.), and sugar high, about 10 cts. per lb., have I heard my brother bee-keepers accused of selling "nothing but sugar" for extracted honey, and no doubt the same has often been said of me. Last fall I found much difficulty in trying to sell nice white section honey among the people in a neighboring city, put up in the 12-lb. Heddon shipping-crates bought of you, simply because many of them thought it impossible for the bees to do such work, and that surely it must be some of that manufactured honey they had so often read about. It is useless to tell them what any sane person ought to know, that we can't afford to buy sugar for 10 cts. and sell it for 7, or that A. I. Root, one of the largest bee-supply men in the world, has a standing offer of \$1000 to any person who will just show him the place where comb honey is manufactured. What a power is the press! and if it would only take up the refrain of GLEANINGS' Tobacco Column, what a revolution would in time spread over our mighty land! Allow me also to commend GLEANINGS for its many timely articles devoted to our health and homes.

Uvalde, Texas, May 24, 1887. J. D. FELIX.

Be of good cheer, friend F. I know how foolishly stubborn the world seems to be in this matter of the adulteration of honey; but light is breaking, and intelligent people are beginning to rebuke these slanderous falsehoods whenever they are heard.

THE EVIL TENDENCIES OF TOBACCO ILLUSTRATED. HOW ONE VICE LEADS TO ANOTHER.

I have been a user of tobacco for about one year steady, and four years off and on. I tried to quit several times, but my appetite for the weed overcame the desire to quit its use. My eyes soon began to hurt, and I lost 10 lbs. in weight in less than a month, and I never felt well. This feeling made me want stronger stimulants, and I took to drinking whisky, and going to dance parties. I stopped going to church and all religious worship, and was going down hill as fast as I could go. About April 13th I went to prayer-meeting and was convicted of my sin. I went home deeply troubled. My troubles lasted all next day; but a little after night, when in my room, something seemed to whisper, "This may be your last chance; heed not the call, and the door may be closed for ever." 'Twas then I

fell on my knees and prayed, "Father, forgive me. I have sinned." Relief came to my troubled soul, and I arose from my knees a new man at heart. I then determined to give up the use of a thing that cost me so much. I have been without the weed for nearly two months, and I have now not much longing for the stuff.

Mason, Texas, May 7, 1887. A. H. AUSTEN.

A neighbor bee-keeper of mine came in the other day to buy some queens. When about to leave he said, "I have quit chewing tobacco. I have not taken a chew in three weeks, and I have been a constant user of it for over fifty years. With God's grace to sustain me, I do not expect to use it any more."

"And you will pay for a smoker if you do?" I said.

"I will," he replied.

Please send him a smoker and a copy of GLEANINGS that you put this in, to David Hughes, Hackberry, Lavaca Co., Tex. J. K. MULLIN.

Oakland, Texas, May 9, 1887.

I have been chewing tobacco, but have quit. If I ever chew or smoke again, I will send you 70 cents for the smoker.

F. L. SUFFERN.

Voorhies, Ill., April 19, 1887.

I have quit the use of tobacco, and will never use it again. If I ever use it again I will pay for the smoker.

J. W. TRIBBLE.

Prescott, Ark., May 5, 1887.

If your offer of a smoker holds good to non-subscribers, please send one, as I promise to abstain from the use of tobacco, and to pay for the smoker if I use it again. THEO. B. HENDRICKSON.

Springdale, Pa., May 16, 1887.

JOINING THE RANKS OF MANY.

I have been a smoker ever since childhood; and seeing so many giving up the habit I will say that I promise to quit; and if ever I smoke again I will pay you for smoker you send.

W. V. JOHNSON.

Fairmount, Ark., April 13, 1887.

As I am in the apiary business, and have been an inveterate smoker of the weed, I claim a smoker of you. I promise I will never use the poison again; but if I do I will pay you your price in full for the smoker.

J. B. MAYO, M. D.

Bear, Montgomery Co., Ark., Apr. 12, 1887.

THE BOY WHO SIGNED THE PLEDGE.

I am the boy you gave the smoker to, and am 14 years old. I signed your pledge last fall and I have kept it. I will try to get some more boys who chew tobacco to sign the pledge if I can.

R. REED.

Jolietville, Ind., June 2, 1887.

I think you are the means of doing a great amount of good as a reformer. My brother has stopped smoking. Will you send me a smoker? He desires it to be sent to me. If he ever smokes again I will pay for the smoker.

Prairie City, Ill., May 7, 1887. CORA A. CASTLE.

QUIT USING AT 51 YEARS OF AGE.

You may send a smoker to Thos. Harden. He has quit using the weed, at 51 years of age, so I think he deserves one to strengthen his resolution. If he resumes I'll see that you get your pay. Our bees are storing honey rapidly.

MRS. MAGGIE GOODRICH.

Rock Falls, Tex., May 4, 1887.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange, hives, sections, frames, crates, etc. (either flat or nailed), for white paint, box nails, foundation, belting, or any thing I can use. Send for free catalogue. 9-11-13d
C. W. COSTELLO, Waterboro, Me.

EGGS for hatching.—Wyandottes, Polands, Hamburgs, and Leghorns, in exchange for section boxes, or foundation. Circulars free.
4tfdb. A. H. DUFF, Creighton, Ohio.

WANTED.—To exchange English lop-ear rabbits, Guinea pigs, and water-spaniel dog pups for bees by the pound. F. GROSSMAN,
11tfdb Kammis, Cuyahoga Co., O.

WANTED.—To exchange a "Star" bicycle for bees. Just the horse for a bee-keeper. 1213d
Box 375. C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange Italian and hybrid bees in Simplicity hives for a first-class 50-inch bicycle. D. S. BASSETT,
12tfdb Farnumsville, Wor. Co., Mass.

WANTED.—To exchange 1 organett, 1 German accordion, for bees by the pound, or full colony. Make offers, and address S. F. REED,
13tfdb N. Dorchester, N. H.

WANTED.—I will exchange tested or untested purely bred Italian queens for a microscope or telescope. A. P. STAIR,
13d Whitney, St. Clair Co., Ala.

WANTED.—To exchange for 3-frame nuclei with tested queen, pure Italians or Holy-Land bees, one 6-inch Pelham foundation mill, complete, with dipping-tank. Give prices of bees.
13d Address F. THIELE, Caroline, Wis.

WANTED.—To exchange a bee-keeper's complete printing outfit, for a Barnes hand-power circular rip saw, Barnes foot lathe, or any thing useful of equal value. M. W. SHEPHERD,
13d Rochester, Lorain Co., Ohio.

WANTED.—A situation in some apiary; 10 years' practical experience in bee culture. Guarantee satisfaction in my work.
13d L. WERNER, Edwardville, Ill.

FOR SALE CHEAP!

25 colonies of Italian bees in 8-frame hives, L. frame, with untested queen, \$5.00 each; tested queen, \$5.50; with hybrid queen, \$4.50. Two-frame nuclei with untested queen, \$2.00 each. The bees are in good condition. Also my 8-frame hive for comb honey, complete hive, or arranged for comb honey, including body, bottom-board, ½-story cover, 8 brood-frames, 1 section case, 1 sink honey-board, all complete, no paint, for only \$1.40. 13d
J. M. KINZIE, Rochester, Oakland Co., Mich.

UNTESTED ITALIAN QUEENS.

Single queen 65 cts.; 5 for \$3.00; 12 for \$6.50. Bees per pound, same price. I. R. GOOD,
13tfdb Nappanee, Ind.

FOR SALE

An 80-acre farm in Franklin Co., Ill. About 60 acres in cultivation, 2 good wells, ½ mile from school, 3 miles from P. O., ½ mile from Co. seat. For particulars as to price, address John W. Lillie, Ewing College, Ill., or to me here. 13tfdb
JOHN A. LILLIE, Raton, Colfax Co., N. Mex.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have some fine mismated Italian queens from imported mothers, to sell at 50 cts. each, and guarantee safe arrival. W. A. SANDERS,
Oak Bower, Hart Co., Ga.

I have a lot of hybrid and mismated Italian queens that I will sell at 40 cts. each, or 3 for \$1.00. J. M. KINZIE, Rochester, Oakland Co., Mich.

I am requesting my apiary of Italian bees, and will sell queens at 50 cents apiece. Satisfaction and safe arrival guaranteed. HARRY G. CAMP,
Winona, Col. Co., O.

I have ten good hybrid queens for sale at 50 cts. each; five to one address, \$2.00. I will also sell virgin Italian and hybrid queens at twenty-five and fifteen cents each. W. E. MORRISON,
Alvinston, Ont., Can.

I will sell black queens for 25 cents and hybrids for 40 cents, by return mail. Wings clipped, and raised in 1886. GEO. L. FERRIS,
Five Corners, Cay. Co., N. Y.

BLACK AND HYBRID QUEENS FOR SALE.—Black, 25 cents; hybrid, 40 cents; mismated, 45 cents.
W. G. HAYEN, Pleasant Mound, Ill.

Pure Italian Bees & Queens for Sale.

Untested queens, 75 cents each; 3 for \$2.00. Tested queens, \$1.50 each; 3 for \$4.00. Full colony in Simplicity hive, \$5.00. Three-frame nucleus with untested queen, \$2.00; with tested queen, \$2.50. Safe arrival guaranteed. If you think they are not pure, send your address and I will send you a sample. Queens for sale in July and August. Address or call on 13d BEN. J. COLE, Reno, Wash. Co., O.

Bees at Living Prices.

Pure Italians and hybrids with untested queen, \$1.25 per pound; with tested queen, \$1.75 per pound. Send for price list. W. S. DORMAN,
13d Mechanicsville, Iowa.

ITALIAN QUEENS.

Reared from one of A. I. Root's very best six-dollar selected tested imported queens, and from the purest and best of home-bred queens, and the cells built and hatched in full colonies. Warranted queens, \$1.00; five for \$4.00. Warranted queens reared by natural swarming, \$1.50; two for \$2.50; tested queens, \$1.25. Selected tested queens, reared by natural swarming to breed from, \$2.50. Safe arrival and satisfaction guaranteed. Remit by registered letter or money order, payable at Salem, O. 13d
F. H. SCATTERGOOD, P. M., Winona, O.

UNTIL FURTHER NOTICE

I will sell select tested Italian queens at \$1.00 each, by return mail *prompt*. Satisfaction guaranteed. 13d WALTER S. POWDER, Grosbeck, Ham. Co., O.

THE NEBRASKA APIARY.

3-frame nucleus hybrid bees (all fra's containing brood) with queens, \$2.25; full colonies of bees in one-story 10-fr. Simp. hives, \$5.50; chaff hives (see in cut of apiary, Apr. 15th GLEANINGS), \$2.50; two-story Simp. hives set up all complete and well painted, \$1.75; 4¼x4¼ V-grooved sec. (less than 500, ½ ct. each); per M. \$4.50. Photo of apiary "to boot" on cash orders of \$5.00 and over. J. M. YOUNG,
13tfdb Rock Bluffs, Cass Co., Neb.

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Bees Cheaper Than Ever.

I have had charge of A. I. Root's apiary for three years. Have now started an apiary and am ready to fill orders promptly. Untested queens, 75 cts.; tested, \$1.00; select tested, \$1.50. Satisfaction guaranteed.

WM. P. KIMBER,
6ttdb Medina Co. Medina, Ohio.

SHIPPING GRATES

THE BEST, THE CHEAPEST.

Write for prices.
1ttdb

G. B. LEWIS & CO.,
Watertown, Wis.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 2ttdb

A. F. Stauffer & Co., Sterling, Ill.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

BY SENDING 30 CENTS

in stamps, you will get by first mail a **HANDSOME BOX** of note paper and envelopes **FOR LADIES** and containing new put up specially for Pen and Pencil.

Address: **GEORGE E. STEVENS,**
BOOKSELLER and STATIONER, CINCINNATI, OHIO.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent to all who apply. Address
6ttdb HENRY ALLEY, Wenham, Mass.

There is Some Fun

And much sense in our beautiful chromo card described on pages 83 and 112. Sense to tell people in a neat way what you have to sell; and fun to take in the money. Look it up, or address

4ttdb J. H. MARTIN, Hartford, N. Y.

UNTESTED ITALIAN QUEENS.

Single queen 65 cts.; 5 for \$3.00; 12 for \$6.50. Bees per pound, same price. I. R. GOOD.
13ttdb Nappanee, Ind.

DADANT'S FOUNDATION FACTORY, WHOLE-
SALE AND RETAIL. See advertisement in
another column. 3bttdb

ITALIAN BEES AND QUEENS A SPECIALTY. Tested queens in June, \$1.25 each. Untested, after June 1st, 75c; six, \$1.00; twelve, \$7.50. Bees by the lb., 75c; half lb., 50c; 2 fr. nuclei after June 1st, \$2.00; 3 fr. nuclei with untested queen, \$2.75. Circular free. Address: **JOHN NEBEL & SON,**
5-16db HIGH HILL, Mo.

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



This box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 30 cts.; \$1.00 per 100; or \$9.00 per 1000; 10,000, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

FOLDING BOXES.

Our Carbons for enclosing Section Honey are the best & lowest priced in the market. Made in one piece. With or without Tape Handles. With Mica Fronts or without. In the Flat or set up. Printed or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. Price List Free. Samples 5c.

14 oz. Glass Jars \$5.25 per gross, including Corks & Labels. 1-1/2 & 2 gross in a Case, Catalogue of Honey Labels free.

A. C. CRAWFORD, S. Weymouth, Mass.

CARNIOLANS.

**GENTLEST, BEST HONEY-GATHERERS, AND
THE QUEENS THE MOST PROLIFIC OF
ANY KNOWN RACE.**

Untested queens, each \$1 00
Send for circular. Address

S. W. MORRISON, M. D.,
Chester Co. Oxford, Pa.
Mention this paper. 12tfdb

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

DESIRES to call attention to the typographical neatness and "get up" of his little book,

"THE PRODUCTION OF COMB HONEY."

It is printed from new type (brevier); the matter leaded; the paper is heavy, delicately tinted and super-calendered; and the press-work is a "credit to the craft." But it is the cover, which is bright-yellow card-board, passed through a comb-foundational mill, that has brought forth the most enthusiastic encomiums. The work is very nicely done, and, at the first glance, the cover would almost be taken for foundation; while the beautiful twig of basswood upon the back of the cover and the artistic lettering upon the front, printed as they are upon a corrugated surface—all combine to give the book a peculiarly neat and tasty appearance.

Dr. A. B. Mason writes:—The cover is nice, printing fine, and contents grand.

Dr. C. C. Miller says:—Nothing less than a genius would have gotten up that cover.

E. Kretschmer says:—It is a surprise, in style and workmanship. Nothing could be added to improve it.

Louis Werner writes:—It is the best bee-book I ever had, and I do not see how you can print such a neat book for so small a price.

James Heddon writes:—Your book is a "dandy." The "get up" is nowhere equaled. You have outdone us all on the book problem, and I am glad of it.

Chas. Dadant & Son write:—The book is at hand, and though we do not agree with all it contains, we must say that it is as neat and tastefully gotten up as any thing we ever saw.

The *Bee-Keepers' Magazine* says:—"The Production of Comb Honey" is the title of a unique little work of 45 pages, by the pen of W. Z. Hutchinson. Mr. Hutchinson struck a happy idea when he designed the cover of his work.

Prof. Cook offered congratulations again and again, saying:—It is decidedly the most unique little thing I have seen in a long time. Why, that cover alone ought to sell it, to say nothing of the good things inside.

The above are fair specimens of scores of similar testimonials that I have received, *unsolicited*.

Reader, if you wish to see a little typographical "gem," send 25 cents for "The Production of Comb Honey."—Stamps taken; either U. S. or Canadian.

Fine Italian Queens, reared from best selected, tested, imported mother, 75 cts. each, by return mail.

Tested Italian Queens

REDUCED TO \$1.00 EACH.

Untested, 75 cents each. Bred either from imported Bellinzona (dark strain) or albino (light strain), as preferred. Orders filled promptly, and satisfaction guaranteed. Circular free. 9tfdb

Chas. D. Duvall, Spencerville, Mont. Co., Md.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfdb

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange Italian and hybrid bees in Simplicity hives for a first-class 50-inch bicycle. **D. S. BASSETT,**
12tfdb Farnumville, Wor. Co., Mass.

WANTED.—To exchange 1 organett, 1 German accordion, for bees by the pound, or full colony. Make offers, and address **S. F. REED,**
13tfdb N. Dorchester, N. H.

WANTED.—To exchange a Given foundation press, the size is for Simplicity frames, for a bicycle. 141516d **THOS. HARTLEY,** Gilman, Ill.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14tfdb **A. H. DUFF,** Creighton, O.

WANTED.—To exchange large hotel in good business city near Des Moines, Iowa, worth \$7000 cash, for small farm or city property, in good locality for bees. For particulars address 14tfdb **J. A. OSBUN & SON,** Knoxville, Iowa.

WANTED.—To exchange tested Italian queens at \$1.00 each, untested 80 cents, and bees at 80 cts. per pound, for a good lever watch. 1415d **S. C. PERRY,** Portland, Ionia Co., Mich.

WANTED.—To exchange good colonies of bees in 10-frame L. hives, for a new organ, western land, potatoes, or any thing I can use. 14tfdb **J. V. CALDWELL,** Cambridge, Ill.

WANTED.—To exchange bees, a Barnes com. saw and set of carpenter's tools, for first-class bicycle. 14d **J. C. MILLIMAN,** Elk Grove, Wis.

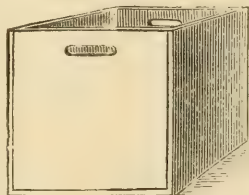
WANTED.—To exchange pure-bred fox-hound puppies or \$75.00 Baker gun, for colonies of bees. Gun nearly new. **B. CHASE,** Earlville, N. Y.

WANTED.—To exchange pure Italian bees in Simplicity hives, for gun, heavy, 10-g. B. L. shot-gun or repeating rifle, 22, 32, 38, 40, or 44 caliber. 14d **S. J. HALL,** Shiloh Hill, Rand. Co., Ill.

WANTED.—To exchange new Centennial incubator, for Barnes' saw. Box 1, Mulberry, Pa.

POTATO BOXES

(TERRY'S).



These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

A. I. ROOT, Medina, O.

T TINS

Made to order, any length up to 20 inches. T supers, chaff hives, and supplies on hand and made to order. Send for prices. S. D. BUELL,
Union City, Mich.

CHOICE Italian QUEENS

65 CENTS.

C. M. GOODSPEED, Thorn Hill,
Box 31, Onon. Co., N. Y.

MOORE'S RED-CLOVER ITALIANS!

READ THE FOLLOWING:

This certifies, that last year I bought of J. P. Moore two colonies of Italian bees; and this season I found them working on the first crop of red clover in great numbers, just like a swarm.

J. N. RAVENSCRAFT, Morgan, Ky., July 7, 1887.

Reduced prices: Warranted queens, each 75 cts.; 3 for \$2.00. Tested queens, \$1.00 each. Safe arrival and satisfaction guaranteed. Circular free.

14-16d

J. P. MOORE,

Morgan, Pendleton Co., Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND
RETAIL. See advertisement in another column.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

COMMON SENSE Automatic Door - Check.

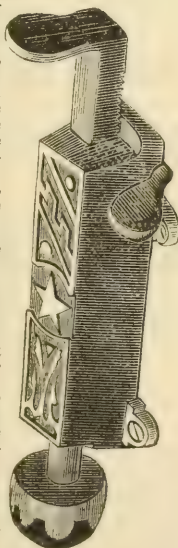
SOMETHING THAT EVERY GOOD HOUSEWIFE
HAS BEEN LOOKING FOR.

Who has not felt the need of some simple and effective device for holding a door at any desired position? Many times you want to let in a very small amount of air, and it is difficult to fasten the door just where you want it. Many people use a couple of bricks, but these are unhandy, and ungainly looking things.

The accompanying cut shows the nicest thing for the purpose we have ever found. It is very simple, and yet very effective. It is attached to the corner of the door with four screws. You place your door just where you want it and press your toe on the upper end, pressing it hard against the floor. In the meantime the small dog catches it and holds it there and your door is securely fastened. When you want to release it to shut or open the door, simply touch your toe to the dog, and the spring inside presses the center bar up out of the way. The lower end has a rubber cap inserted so that it may be used on a carpeted floor, or even on a nice hard-finished floor, without injury.

If you try one you will want one for every door in your house. The price is only 35 cts.; by mail, postpaid, 45 cts.

A. I. ROOT, Medina, Ohio.



Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I am requeening my apiary of Italian bees, and will sell queens at 50 cents apiece. Satisfaction and safe arrival guaranteed. HARRY G. CAMP,
Winona, Col. Co., O.

I have one black queen for sale at 25 cents. Mismatched Italians, or hybrids, 50 cts.
R. H. BAILEY, Ausable Forks, N. Y.

Black and hybrid queens for sale; black, 15 cts.; hybrid, 25 cts.; mismatched, 40 cts.
W. G. HAYEN, Pleasant Mound, Bond Co., Ill.

For Sale.—3 mismatched Italian queens, at 50 cents each. Safe arrival guaranteed.
CHAS. MCCLAVE, New London, O.

During the latter part of July I will sell 40 hybrid queens at 25 cts., or five for a dollar. All of '86 and '87 rearing. Stamps taken. Satisfaction guaranteed.
L. H. ROBEY,
Worthington, Marion Co., W. Va.

I have some fine mismatched Italian queens for sale at 40 and 50 cts. each
J. W. SHELLEY,
Nicholasville, Ky.

KIND WORDS FROM OUR CUSTOMERS

The T super was received July 2, and in good condition. I never saw much nicer lumber. The tins are "dandies." Accept thanks. W. A. LAWRENCE.
Wayland, N. Y., July 4, 1887.

THE DOUBLE-WHEEL HOES.

The Planet Jr. double-wheel hoe, cultivator, and plow came to hand in good order one week from the day it was ordered. It gives perfect satisfaction. My three boys delight working with it.
Pittsburgh, Pa., June 21, 1887. T. C. DAVIS.

THE WHEELBARROW.

The two wheelbarrows I ordered of you came all right, in just 7 days from the time I sent the order, in splendid condition. We are well pleased with them. I don't know how such a neat little barrow can be made for \$4.00. I would not take \$5.00 for mine. Bees are working on basswood very lively.
Morristown, Ind., June 20, 1887. M. TALBERT.

A HOUSEHOLD NECESSITY.

GLEANINGS has come to be a household necessity with us. Mrs. L. says we can not do without it, and my little girl is much interested in the young folks' department. I got a good deal of help from all departments in the magazine, and I will say, with Mr. Pond, that you will never know here how much good you are doing.
Norridgewock, Me., May 12, 1887. W. B. LONGLEY.

IN DEFENSE OF OUR GOODS; THAT WAX-EXTRACTOR.

I was reading in GLEANINGS, page 387, 1887, a little complaint against you and your goods from P. Schons. I don't see how he got such a bad wax-extractor as he said he did, for I purchased one of you in 1886. It worked like a charm. In place of losing 5 lbs. of wax, as Mr. S. said he did, I am fully satisfied that I gained 10 lbs. in using the extractor in place of extracting the old way. And he complains of his goods coming too late. In regard to that, I purchased goods of you in 1886. They came four days sooner than I expected them to come, and I told you to send them by express, which you did. I did not ask you to mark them as corn, as Mr. S. would like you to mark his goods. I have always found you square in your dealings. Any one who is making complaint of you is doing more than I can do.
JOHN H. PENCE.

Terre Haute, Ohio, June 13, 1887.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey*.—We quote choice comb 8@10 cts.; latter is for choice white clover in good condition. Strained in bbls., 3½@4 cts. Extra fancy, of bright color and in No. 1 packages, ½ cent advance on above. Extracted in bbls., 4¼@4½ cts.; in cans, 5 cts. Market dull and receipts increasing.

Beeswax steady at 21 cts. for prime.

July 11. D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

CHICAGO.—*Honey*.—The crop of 1886 has been exhausted, so far as this market is concerned, in comb honey. A little of the new crop has come forward and sold at 15@16c in one-pound sections. Quite a quantity could be sold now in a small way. Extracted, 5@7c. *Beeswax*, 22c. R. A. BURNETT,
July 9. 161 So. Water St., Chicago, Ill.

CINCINNATI.—*Honey*.—Demand is fair for the season for nice comb honey and extracted in square glass jars and tin buckets for table use. There is also a good demand from manufacturers for dark grades of extracted honey. Prices for comb honey are nominal, no new being in our market as yet. Extracted brings 3@7c per lb. on arrival. *Beeswax* is in good demand and brings 20@22c per lb. on arrival for good to choice yellow.

July 9. CHAS. F. MUTH & SON,
Cincinnati, O.

COLUMBUS.—*Honey*.—The honey market in this section of Ohio will no doubt be very good for shippers, as all this section of country, so far as I can learn from the best sources, will be very scarce, and no doubt a large quantity can be sold here. I shall not have anywhere near enough to supply my demands, and I should like to hear from all those having quantities. Prices rule about as follows: Extracted, 8@10c; comb, pure white clover, 15@18c. No new honey in as yet.

July 9. EARL CLICKINGER,
117 S. 4th St., Columbus, O.

DETROIT.—*Honey*.—New honey in small lots, nicely put up, brings 12½ cts., and likely to improve in price, as the crop in Michigan is short. *Beeswax*, 23c.
July 12. M. H. HUNT, Bell Branch, Mich.

BOSTON.—*Honey*.—We have no change in prices to report. Sales very light. Fancy white extracted in good demand, with a very limited supply.

July 11. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

KANSAS CITY.—*Honey*.—There is no new honey in our market yet. Can't give quotations. *Beeswax*, 18@20c.

July 11. CLEMONS, CLOON & Co.,
Kansas City, Mo.

PHILADELPHIA.—*Honey*.—No movement, nominal. *Beeswax*, quiet; white, 26@28; choice yellow, 22@24; common, 18@20; dark, 16@18.

July 12. PANCOAST & GRIFFITHS,
Philadelphia, Pa.

ST. LOUIS.—*Honey*.—Think the old stock of honey is pretty well closed out; some few lots still on the market. White clover, 1-lb. sections, as to quality, 8@10c; extracted, clover, bbls., 4@5c; cans, 5@5½c. Southern honey, some new coming in; extracted, in bbls., 3½c; sold 5000 lbs. to-day. *Beeswax*, 21c; original selected, 23½c.

July 11. W. B. WESTCOTT & Co.,
108 and 110 Market St., St. Louis, Mo.

For Sale!

16 H. P. UPRIGHT TUBULAR BOILER.
Complete, with heater, injector, steam and water gauges, etc. Price on board cars, \$250.00. 12tfdb
WATTS BROS., Murray, Clearfield Co., Pa.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdb

STANLEY'S Special Offer for July.

See Gleanings, July 1, Page 493.

UNTESTED ITALIAN QUEENS.

Cells built in full colonies. Single queen, 60 cts.; 6 for \$3.25; 12 for \$6.00. 14tfdb

I. GOOD, Sparta, Tenn.

FOR SALE.—Over 100 colonies of bees, that have averaged \$10.00 per colony for four years. With good local supply trade. Situated in the county seat of Uvalde Co. Correspondence solicited. 14-15d D. M. EDWARDS, Uvalde, Uvalde Co., Tex.

Highest Quality Italian Queens

at Lowest Prices. Untested, 75 cts. Selected tested, reared in 1886, \$1.50; 2-fr. nucleus with untested queen, \$2.00; with tested queen, \$2.50. Bees, 50 cts. per lb. FRANK M. BALDWIN, Marion, Ind. 14-15d

Beautiful Italian Queens.

J. F. Wood wishes to inform the readers of GLEANINGS that he is now filling all orders promptly for those golden queens, that have given universal satisfaction to all his customers the past two seasons, at 75 cts. each. I use no lamp nursery. Do not fail to send for my 1887 circular. Address 14-15-16d

JAMES F. WOOD, North Prescott, Mass.

FOR SALE. ITALIAN QUEENS

From Selected Mothers. Warranted, \$1. Select tested, \$2. Bees, per lb., 75c. 3-frame nuclei, with tested queen, \$3. Full colonies in Sim. hive, \$6. Safe arrival guaranteed. Fifteen years' practical experience. 14d

CHAS. MCCLAVE, New London, Ohio.

BEE-KEEPERS

Will find it to their interest to write to the Hub Mfg. Co., New Hampton, Iowa, and learn how to keep their honey-houses clear of bees, flies, etc., at 8½ cents per window. Information free.

Italian Bees and Queens.

Full colonies, \$6.00. Bees, per lb., 75 cts. Frame of brood and bees, 75 cts. Tested queen, \$1.25. Untested, 75 cts. Mismatched, 35 cts. Queens reared from imported mother. MISS A. M. TAYLOR, 14tfdb Box 77. Mulberry Grove, Bond Co., Ill.

HEADQUARTERS IN ILLINOIS

For the Manufacture and Sale of

BEE-KEEPERS' SUPPLIES

8 and 10 frame Simplicity hives furnished at a great reduction in price. Nice sections and foundation specialties. A full line of supplies always on hand. Write for my new price list 12-15d

F. M. ATWOOD, Rileyville, Ill.

LOOK AT THIS!

My improved Smoker can be taken apart to clean it by turning a button. Lay the tube on the coals and let it burn out. The valve will come off in the same way to clean. Send \$1.00 for a Smoker and see how well you will like it. I will please you or return your money. I have tested it all of last season in my apiary of 79 hives, and it gave perfect satisfaction. If wanted by mail, add 25 cts. to pay postage. Address 9-16b

W. H. SMITH,
BROOKTON, TOMPKINS CO., N. Y.



Vol. XV.

JULY 15, 1887.

No. 14.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.90; 3 for \$2.75, 5 for \$4.00;
10 or more, 75 cts. each. Single num-
ber, 5 cts. Additions to clubs may be
made at club rates. Above are all to
be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices NOT LESS
than 90 cts. each. Sent postpaid, in the
U. S. and Canadas. To all other coun-
tries of the Universal Postal Union, 18
cts. per year extra. To all countries
not of the U. P. U., 42 cts. per year extra.

A HOUSE FOR THE APIARY.

PROF. COOK GIVES US HIS IDEAS ON THE SUBJECT.

MR. ROOT:—I have been giving much thought of late to the plan for an ideal house for the apiary. You will remember we talked of it while you were here. I have also conferred with such authorities as Messrs. Hutchinson, Doolittle, Dr. Miller, Heddon, etc. It seems to me that this is a question of exceeding importance, and I wish to submit my drawings and reasons for this plan for criticisms, that we may secure the very best. The house is three stories—a cellar 7 ft. high; first floor 8 ft., and chamber 6 ft. at the lowest part. The cellar is for wintering bees; the rooms above are for honey, extracting, and shop; the chamber is for storage. The cellar has two rooms. One, for bees in winter, is 18 × 24 ft. This is entirely under ground, with a good stone wall, grouted below and plastered above, with a double floor grouted between—to secure against mice and cold alike, and with the partition wall double, with double doors. At the center of the partition wall a small chimney runs from the bottom of the cellar up to and through the roof. Just within the wall of this room is a small gutter which extends nearly around the room, as seen in the drawing, from one end of a cistern to the underground sub-earth ventilation-pipe which runs 200 feet or more under ground. Thus this pipe of four-inch glazed tile serves for sub-earth ventilation, overflow-pipe for a cellar cistern, and it can be made to empty the cistern and cool the bee-cellar at any time, the water passing through the small gutter.

In the other room of the cellar, which is 8 × 24 ft., there is a cistern 8 × 14 ft., and 5 ft. high. As will be seen, this extends 2 ft. into the bee-cellar, yet the

partition is tight, except a small hole just at the bottom, so we may say we have two cisterns—one a small one in the bee-cellar, the other a large one in the other cellar, though they are connected at the bottom. The other room, which is a sort of vestibule for the bee-cellar, has two windows—one (1 × 2) by 2 ft., and stairs to the room above, which are covered by double trap-doors. This room is entirely under ground, though the outer double door, which is 4 ft. wide, is, because of a natural slope of the ground, on a level with the outside, or else is inclined so we can easily run a wheelbarrow into the cellar. The windows may receive light by a half-circular excavation, or, if desired, may be above the earth at this south-east corner of the house.

Here, then, we have an arrangement by which we can control the temperature perfectly, from October to May; and from an experience extending now over eight years, I am sure that, with enough good food, bees are entirely safe in such a cellar. By aid of the cistern there is no occasion to use ice to reduce the temperature in spring; and we can, by aid of sub-earth ventilation and cistern water, keep the temperature just to our liking all through the winter, with almost no trouble and at no expense. This is no theory: it is demonstrated fact. As the bees can be wheeled into the cellar, their removal to or from the cellar is a very light task.

On the ground floor, which is on a level with the earth outside, there are three rooms. One on the south-west, 12 × 15 ft., is for extracting and extracted honey. It has a hard-wood floor, wide outer door, and only one thickness of wall, so that in summer it is kept very warm, and so enables us to ripen honey without leaving it in the hive till it is all capped. This is also a demonstrated fact. The joists above are just so wide that they serve as

frame - supports. The windows are poised with weights, and these and the door have an outer gauze hinged frame. In case of the windows, this extends three inches above the outer wall, leaving a half-inch space, so that bees can easily pass out, while they do not pass in.

A second room on the south-east is also the same size, but is double walled, lathed and plastered. It contains a stove, but has no outer door. It is for comb honey, for an office, and has trap-doors to cellar stairs. I find that some are not in favor of this room, but I think it very desirable.

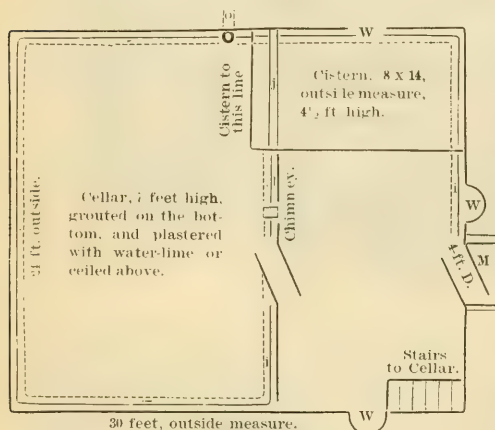


Fig. 1. Diagram of cellar.

REFERENCES AND REMARKS TO FIG. 1.

D, 4-ft. double doors.

I, gutter.

J, stone wall 4 1/2 feet, or all the way up.

L, double wall lined with paper.

M, passageway from cellar, with stone abutments on each side, and level with outside, so a wheelbarrow can be run in and out.

O, drain of 6-inch tile—Dr. Miller says 10-inch—following the dotted lines 200 feet, and all the way below frost or variable-temperature mark.

W, cellar windows, 1 x 2 1/2 ft., double; outer glass, and inner wood. Both are hinged above so as to open in easily.

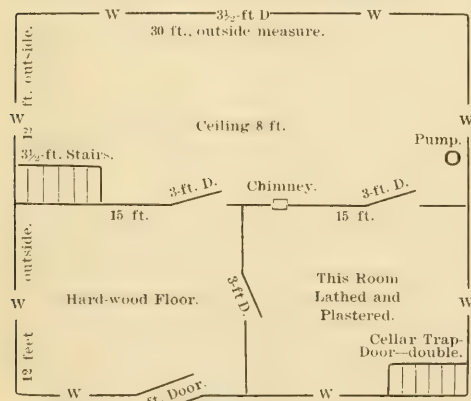


Fig. 2. Diagram of first floor.

REFERENCES AND REMARKS TO FIG. 2.

D, doors, the double one at the bottom having a sill so low a wheelbarrow can be run over it, outside door being of gauze.

W, windows, all of which have wire gauze screens outside, and hinged to swing out. Screens on four south windows to extend 4 inches above upper jamb, with 1/2 inch space.

Posts 14 ft. Studding, to chamber, alternate 12 and 18 inches apart (5). Side-studding 12 feet long and 1 foot apart.

Floor, double, one foot apart, and with grouting.

Cellar and house mouse proof.

The entire north side of the building is for a shop. This is 12 x 30 ft. It has a pump from the cistern below, and stairs to the chamber above. It has an outside door, four windows, and a door into each of the other rooms. There will also be a stove in this room. In winter, then, when we have a fire in either room, the chimney will be heated, and the air drawn from the bee-cellar. The wind, too, passing over the chimney, will suck the air from the cellar. In both cases the air is supplied through the long sub-earth pipe, and so is tempered by the temperature of the earth, and is kept sweet and pure. This is both theory and demonstrated fact. This room is large enough so that a small engine and some machinery can be introduced if desired. I find that this house, large enough for a large apiary, can be built for \$500; and for safety and convenience I believe it fills the bill. I can not agree with Mr. Heddon, that we had better have double-walled houses above ground. I think the cellar far better and more convenient. I shall be very glad to have this plan criticised in the next number of GLEANINGS, for, as stated before, this is a matter of great importance to all bee-keepers in the Northern States and in Canada.

A. J. COOK.

Agricultural College, Mich., June, 1887.

Since the above was in type, friend Cook sends us the following note:

Some of our best apiarists say the walls above should be double, with one-foot space all around filled with sawdust; and some object to dividing the south half of the building into two parts. I still think the double-walled space a useless expense, but will so make the building that it can be thus changed at any time. I also wish the two separate south rooms.

A. J. COOK.

You have made exactly what we want, friend Cook, and I heartily indorse your remarks in regard to criticisms. Let us have this thing fully discussed. To start the matter going, I would inquire if you expect the one who operates the extractor, to work in a room hot enough to evaporate the liquid honey properly. Extracting is often done in the very warmest weather; and for my part I should want lots of doors and windows, to be covered with wire cloth, whenever the bees might be disposed to be meddlesome. And why do you have a separate space for the comb and liquid honey during the ripening process? Or have I misunderstood your description? I presume the chamber is to be also used for ripening honey. If so, would it have to be finished off on the plan suggested by friend Doolittle, so that it will ripen the comb honey enough to prevent dripping from unsealed cells? There is a vast field open on this subject for questions and answers, but I will not occupy more space at present.

WHAT HAS THE HARVEST BEEN?

AND SHALL WE BE IN A HURRY ABOUT SELLING WHAT WE HAVE?

It has been pretty slim here—the poorest since I have been in the business. In a letter just received from Mr. Heddon, he says: “Clover, cue-fourth crop. Basswood blossomed full, but no better crop than clover. It went right by like a cyclone—all over before we knew it was

drawing to a close." This expresses the situation exactly. Well, what are we going to do about it? We can keep our dishes right side up, and I presume most of us have lost nothing from lack of care in this direction, but we can't make honey-showers. Those of us who are fortunate enough to have any surplus will probably find ready sale for our honey at a good figure. Prices will probably not go so high that our income will be what it would have been had the harvest been abundant; still, this is not impossible. Farmers sometimes make the most money during the years when crops are light. Twenty-five or even twenty cents per pound for comb honey would be a big boost for those of us who have a few hundred pounds to sell. That these figures may be reached, does not seem at all improbable. Already honey is being quoted at 16 to 18 cts., while nearly every market is reported as bare of honey. Honey-dealers are becoming really interested in the situation. Only a few days ago I received a letter from Thurber, Whyland & Co., making inquiries in regard to the honey-crop, and asking, "What is the outlook?" Those who have honey to sell should not be in a hurry to market. Certainly nothing can be lost by waiting until November or December.

And now a word about the bees. Many of them will probably be short of stores, and, unless fed, will die of starvation the coming winter. Many bee-keepers will "lose their heads," become disgusted and discouraged with the bee-business, and the bees will be neglected. Honey will bring a big price, and by next spring their courage will return, and those who have bees to sell will have no difficulty in getting good prices. So, to those who will attend strictly to business the short crop of this year may be a blessing in disguise. See that the bees are well cared for; that they go into winter quarters in first-class condition. This will probably be one of the years when it will pay to winter the bees on sugar, as the difference in price between honey and sugar will be greater than it has been in several years. Keep a stiff upper lip, and, if you must retreat, do so in good order. W. Z. HUTCHINSON.

Rogersville, Mich., July 11, 1887.

SOME SUGGESTIONS AND CAUTIONS.

FEEDING A COLONY FROM WHICH A SWARM HAS ISSUED.

A CORRESPONDENT writes us: "I wish you would tell us in GLEANINGS some quick, reliable method of determining from which colony a swarm has issued, said swarm having come out in the absence of the apiarist, and is found by him on his return hanging on a limb." Well, here is the way I do. Finding such a swarm, and not knowing where it came from, I take a box which will hold about a quart, and get about a tea-cupful of the bees in it, which are kept confined while the rest of the swarm is being hived. If one side of the box is of glass it can be positively known if you get the queen with your few bees, yet she is not very apt to be where you will get her. Having the swarm hived, they are to be carried to where they are to stand, when I uncover the box, and with a kind of whirling motion I toss the bees out of the box into the air. After circling about a moment or so they will return to the hive the

swarm came from, commencing to fan their wings in front of the entrance, thus quickly and certainly telling you where they came from. After throwing them in the air I wait a moment or two, when I rapidly pass through the bee-yard till I see them fanning at a hive. In this way it is easy to know all about it, even in a large apiary of 200 or 300 colonies.

YIELD FROM WHITE CLOVER.

Another writes: "I have seen it stated as a fact that there is no such a thing as overstocking a locality with bees, that a single acre of white clover will furnish, in a good season, at least 100 pounds of surplus each, to 25 or 30 colonies. Is this a fact?" Let us figure a little. That would be 2500 lbs. at the lowest estimate, in surplus honey, for an acre of white clover in a single season, to say nothing about what the bees consume. Then a square mile would give 1,600,000 lbs. of surplus; and if, as I claim, the flight of bees reaches four to five miles from the apiary in every direction, we should have the enormous amount of—well, we have lost our breath trying to comprehend that product, as it exceeds the production of the world. Talk about legislation for bee-keepers! All Dr. Miller has to do is to fence off a few acres of his farm, and he is a rich man; yet the above estimate was made, if my memory serves me right, by one of our most noted writers on the honey-bee. I never saw an acre of clover which I thought yielded 50 lbs. of honey; for had it done so, when more bees were added to my locality the average yield would not have decreased as it has done. When it comes to basswood, with a good yield, I do not know that we have ever been overstocked; for at such times a bee could load up on a single sprig of blossoms, and, when he returned, could get another load again; yet it is not often that even basswood yields like this. At such times it is no great stretch of the imagination to believe a large tree in the open lot would produce 50 pounds, or as much as an acre of clover; but when we really come down to the truth of the matter, what do we know about it? Well, even admitting we know very little about it, I think we know only enough to credit the quoted statement as fallacious.

EXTRACTING FROM BROOD-COMBS.

Still another writes: "Shall I extract the honey from the brood-combs when working the apiary for comb honey? Some of my colonies have several frames nearly filled with honey, and are crowding the queens, not going into the sections at all." I am led to mistrust that the colonies spoken of above have not been rightly managed, or they would not be in this condition. I find that, when bees are allowed to begin the storing of any great amount of honey in the brood-nest, they will continue so to do to a greater or less extent the entire season; that is, a colony that is allowed to cramp the queen once is very likely to continue it throughout the whole season. Very much depends on the control which is had over the brood-nest during the preparation of the colony for the season's work—such control as can be had only by an apiarist who is thoroughly familiar with all the habits of the bee, and who, by the use of division-boards, reduces the size of the brood-nest to the necessities of the colony, or enlarges it as is required to meet the demands of the queen, thus managing the brood-chamber so that, at the commence-

ment of the honey-flow, it will be entirely filled with brood, leaving but little if any space in which the bees may deposit honey, but forcing or compelling them to go into the sections for the necessary room to store it. This, I think, is the only way that comb honey can be secured successfully. A few extra combs, and the use of the extractor on them, would spoil the whole thing. Some prefer a half-depth brood-chamber instead of the division-boards to accomplish the above object; but whatever plan is used, the principle is the same. I think it is safe to say that few if any of the bee-keepers of the present time use the extractor on the combs of the brood-chamber while working for comb honey. G. M. DOOLITTLE.

Borodino, N. Y., June 1, 1887.

In justice to friend Doolittle, it is proper to state that the foregoing article should have appeared in GLEANINGS for June 15; but by an oversight it was omitted. We regret this, inasmuch as the subject treats of swarming. No doubt the article will be found seasonable even yet, in some localities. —Friend D., your method of telling where the swarm came from is quite ingenious, and I know it will work, for I have tried it many times since you or somebody else gave it several years ago. While it is true, that we are comparatively unable to tell about how much honey an acre of clover or even basswood will furnish, I am inclined to think it has been put too high. See my figures in regard to the spider plant, in the A B C book. If an acre of buckwheat furnishes 50 lbs. of honey during the whole time it is in bloom, I am inclined to think it is an extra good crop, and I do not believe white clover often does better. I know a large basswood-tree, in an open lot, will yield a great amount of honey; but it seems to me quite doubtful if any single tree ever produces as much as 50 lbs. in one season. Honey from all these sources, when first gathered, is comparatively watery, and must be evaporated a great deal before it becomes honey such as we would put on the market. I think you are right about extracting from brood-combs. Although we have sold many extractors to bee-keepers who were working for comb honey exclusively, I have always been sorry to sell them one when they gave as a reason for wanting it, that there was too much honey in the brood-combs.

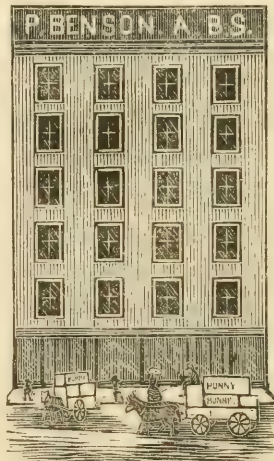
OUR P. BENSON LETTER.

GRAND ENTERPRISE!!! AMERICAN BEE-KEEPERS' STORE.

BEE-KEEPERS arise in yure mite! Trooth is mitey and will prevale. The grate coz of the depreshen in the hunny market is the lo price of hunny. This is projuced by the commition men. So mutch bizness is poot into thare hands that sum of them is makin munny at it. And the way thay do with the hunny is a outrag. I will sightl instants. A man by the name of Mut from Jirmany set up in the commition bizness a sellin of hunny. Hunny was sent to him from every ¼. Now what did he do with that hunny? Why he sold it for all sorts of things. Hunny is a dellick-

asy and hed ot to be poot on the table of the ritch, but this retch, Mut, sold it to ritch and poor alike and tried to git every buddy to buy it. Think of that, poor peapel that cood hardly afford to by butter, a eatin nice hunny onto thair bread. But that wuzzent the werst. He sold hunny even for me-cannickie purposes. Sum of it he soled to bake with, & sum to print with, and some to maik hams with. Think of that! a taking good hunny to poot on greezy hams. He also sold sum in the jirman language.

I think I hev now shone quite clearly that the commition men is the trubble, and as I have the good of bee-keepers at hart I have thot out a plan whairby in whitc evry bee-keeper ken set his oan price on his hunny. The hunny shoold all go to 1 common scenter and then it can be controaled. Sum men goze around and sells thair hunny to the farmers. Enny man which does that lax common scents. If the farmers wants hunny, let them cum for it. Ol the bee-keepers will send thair hunny to 1 scentral point and I will be thair agent and re-seeve it in a fine, large bildding maid for that purpose. It will be called the American Bee-Keepers'



P. BENSON'S HONEY-STORE.

Store. Evry man will send me his hunny and set his oan price to it, and I will sell it at a nominal commition of ½ of 1 per scent. For instants, if he wants 20 scents for his hunny, for evry scent he wants to git, he will send me ½ of 1 scent, so he will send me 10 scents, and when I sell the hunny I will send him 20 scents. The commition must be sent in advance as I doant do a credit bizness, for I doant want to encurridge enny buddy going in det. Det hez bin the rooin of menny a man. You see thair will be no trubble in this wa for them that thinks hunny ot to bring 10 (ten) scents ken poot that price on thair hunny and them that wants it ken poot (30) thirty scents onto thair hunny. In order to help bare expenses I will charge 1 scent a pound each month for stowridge, and if the stowridge gits moar than the price of the hunny, I will take the hunny for part pay and thay ken send a post office order for the balence.

Enny 1 whitc rites letters of inquiry will send his reel name not nesserly for publickashen but as a garntea of good faith. P. BENSON, A. B. S. Whitc it stands for Agent Bee-Keepers' Store.

THE USE OF WIRE IN FOUNDATION.

THE SLATTED WOOD-ZINC HONEY-BOARD.

FROM the *Canadian Bee Journal* of June 29 we take the following article, with the answer by the editor. There is so much of interest and so much of practical value in it that we feel sure our readers in the States can not afford to lose the benefits of the suggestions offered by friend Jones:

I have tried my extractor, and it does the work all right; but I can not get the foundation comb to work. It goes all out of shape as soon as the bees begin to work it out. Do you put it in full size of frames, or do you allow for stretching? I tried three different hives filled with foundation, but had to take the frames out about the second or third day, and take the greater part of the foundation out. I fastened it only at the top, and allowed the bottom to hang loose.

HONEY-BOARDS.

Do you use the metal honey-board on the two-story hive to prevent queens getting into the upper half? Can it not be taken off after the lower half contains young brood? It is quite a hindrance to the bees getting up and down. Please let me have a little information on the above points.

FOUNDATION IN SECTIONS.

I have also some trouble with foundation in the section boxes becoming displaced. Should it be fastened on more than one side or not?

Howick, P. Q., June 21, 1887.

WM. GEBBIE.

The following is the answer to the above, by the editor, D. A. Jones:

Unless foundation is made heavier than is profitable it will usually sag, and our customers prefer it made the thickness that we send it out. We now use wired frames when we put in full sheets, and we think that if you will use wire once you will be satisfied with the result. We have not used it very much; but where the wire is used, the foundation may be much lighter—say one-third. This reduces the expense of foundation per hive one-third, which is quite an item in a large apiary. Deduct from that the cost of the wire, which is a mere trifle, and the wiring will yet leave you twenty-five per cent advantage. Thin foundation may be used in frames, however, as we frequently use it in full sheets by placing one frame with foundation between two combs, crowding the combs up close enough so the bees do not cluster on the foundation but hang their whole weight there while drawing it out and attaching it to the frame and leaving only about half an inch space between combs, and foundation on either side. This allows the bees to rest much of their weight on the combs until the foundation is partially drawn out. Foundation placed in strong colonies for, say, one day in the above way, will be drawn out and attached to the frame sufficiently to allow large swarms to be hived without breaking down, even in hot weather. Before we used wire we had some strong colonies draw out enough foundation in a week to have three or four swarms; and as soon as one lot of foundation was drawn out it could be removed and put in empty hives for future use, and fresh frames filled with foundation could be put in their places.

We use the perforated metal honey-board, or, rather, the wood-and-metal honey-board, which is a great improvement on the metal one, inasmuch as the wood holds the metal from sagging, and always keeps the distance of the bee-space the same. It prevents the storing of pollen in sections or combs above, and also prevents drones from passing up, moving over the sections and soiling them; but the most important point is to prevent the queen from ascending to the second story and filling it with brood. We find that it is unnecessary and a great waste of surplus to raise a large quantity of brood and bees that will hatch just as the honey season is over; they become consumers rather than producers in the large amount of time and stores consumed in feeding larvae. Then after they are hatched it is usually about ten days before they commence gathering honey so that you can see when you know the time your honey-flow ceases about the right time to crowd the queen up on fewer combs.

It should be done from thirty to thirty-five days before the end of the honey-flow. These bees hatched just at the end of the honey-season, and are rather too old to go into winter quarters, but many of them die before they are set in, or soon after. Those raised later on, that have not worn themselves out in search of stores, are the ones most desirable for wintering; then when they are set out in the spring they are more vigorous, and do not die off so early, or "spring dwindle," like those that are old when set into winter quarters. This is a very important matter, and should receive attention; and if carefully managed it will save at least twenty-five pounds of honey per colony.

These perforated wood-and-metal queen-excluders do not prevent the bees from storing honey in the upper story, or sections, and should be left on until the upper stories and sections are removed. There is ten times as much room for the bees to enter the upper story as at the entrance to the hive. This same perforated metal, made into drone-traps, does not prevent the bees from passing in and out; therefore, when they have ten times as much room as an ordinary entrance, besides many of the bees do not require to enter the second story and remain below, we fail to see how it can in any way lessen the honey crop. Careful observers are using it more extensively every year. We sell thousands of feet of it, and the sale is increasing.

If your sections are warm and the wax cool, and you press it on firmly, it will not come off. If you drop a piece of hot wax on a cold surface it cools so quickly that it will slip off by pushing it with your finger-nail, or if you drop cold wax on a hot surface it will incorporate in the wood and can not be removed, therefore you will readily see the necessity of having your sections warm, foundation cold, and pressing very firmly.

We have never had so many good reports about our foundation before. This is the first intimation of any difficulty this season.

MILLER'S PLAN OF REMOVING SECTIONS FROM WIDE FRAMES.

OUR FRIEND "CHARLIE" TELLS HOW TO DO IT.

SINCE the T super, the Heddon crate, and other similar surplus receptacles have begun to assert their superior merits, the old eight-section wide frame has been superseded in many cases; but there is a very large number of our readers who, though recognizing some of the superior advantages of the more recent improvements, yet, from lack of means, and for fear they may not like them any better, will still continue to use for some time their double-tier wide frames. One very great objection to these latter is the amount of labor entailed in securing a crop of honey by their use. The chief difficulty seems to be in removing the sections, after they are filled, easily, quickly, and without damage to the sections. Dr. Miller invented a plan which we think is equal if not superior to any other method we have seen. On page 35 of "A Year Among the Bees," in discussing the different methods of removing the sections from wide frames, he says: "I adopted a plan which allowed them to be taken out very rapidly. This was Charlie's specialty, and he became so expert at it that I think it would be difficult for any one to take out sections faster, no matter what kind of a surplus case might be used. At his best he can take out 960 sections per hour. Moreover I have some doubt if there is any surplus case used from which the sections are more easily and rapidly taken than from these same wide frames."

As there are many of our readers, doubt-

less, who would like to have further particulars in regard to this plan of removing sections, we requested the two Millers, with the assistance of the engravings below, to describe the plan in full—the senior Miller to tell how to construct the machine itself, and the junior Miller to particularize just how he was able to remove 960 sections per hour at his best. The doctor describes the machine as follows:

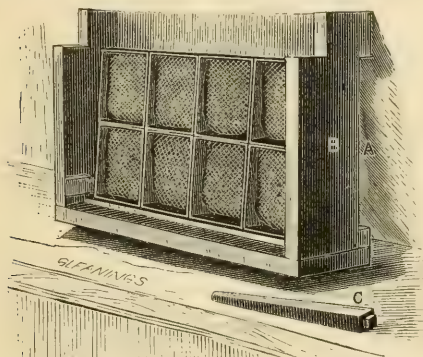


FIG. 2. SECTIONS AFTER REMOVED FROM WIDE FRAME.

The cuts show pretty well just what the machine is, only the engraving makes the two back strips look as if they were part of the ends instead of separate pieces nailed on. The ends (B, Fig. 2) are 11x4, with a notch cut out of the upper front corner, two inches square. The bottom is 20 by 4 3/4 inches, and is nailed upon the end-pieces, projecting back 3/4 in., as 3/8-inch stuff is used in making the machine. At the top of the end-piece, B, is nailed on a back strip 2 x 20 in., and at the bottom a strip 3/8 in. sq. by 20 in. long. From one of these pieces to the other is stretched tightly a piece of strong cotton cloth, occupying the whole width of the machine, and this cloth serves as a cushion for the sections to fall against when pushed out. If a frame is now hung in the machine (as at Fig. 1), and we attempt to push out the sections, the upper part will be held firmly in place, but the lower part of the frame will swing back against the cloth. To prevent this, stops must be nailed on the inside of the end-pieces for the lower end of the wide frame to rest against; but these stops must not be thick enough to interfere with the sections as they are pushed out. Wedge-shaped pieces should be in front of these stops, so that the frame may enter easily, but when pushed back to place will have very little play sideways. Perhaps it is best to have the stop and the wedge-shaped piece all in one piece. If we now attempt to push out sections they will, as soon as free from the frame, drop from the frame upon the bottom of the machine, a distance a little more than the thickness of the bottom-bar of the wide frame. It is better that they should not have this drop, so a strip is nailed upon the bottom about two inches in width, and thick enough so the sections

will have the least possible drop as they are pushed out of the frame.

The machine is now complete, except that a piece of board should be nailed under the front part of the bottom, so that, when the machine is fastened upon the table (by screws, nails, or clamps) the top shall tip back two or three inches. It must be made very firm, and it is a good plan to have the table pushed back against the wall, and a solid box or boxes fill up the space between the machine and the wall.

The push-stick (C, Fig. 2) appears rather heavy in the engraving. It should be made of some tough hard wood, about 9 inches long and 3/4 of an inch square. At one end, cut a shoulder clear around, 1/4 of an inch deep, leaving a tenon 1/4 inch square and 1/4 inch long at the end of the stick. The stick tapers to the other end, so that, for about 2 inches, it shall not be more than 1/4 of an inch thick, the extreme end being a little less than that.

Marengo, Ill.

C. C. MILLER.

The following is from the pen of C. C. Miller, Jr., describing how to manipulate:

Place a pile of supers so that, as you stand in front of the machine, you can reach the frames easily. Besides your stick, you will need a large jack-knife and a common case-knife. Hang a frame in the machine and you are ready to begin operations. Take the case knife (I use a stiff round-pointed one) and run it down between the sections and separator to loosen the tin, noticing if the comb is built on the tin anywhere. If it is, be sure to cut it loose, to save its tearing and making a bad leak.

Next run the jack-knife between the sections and

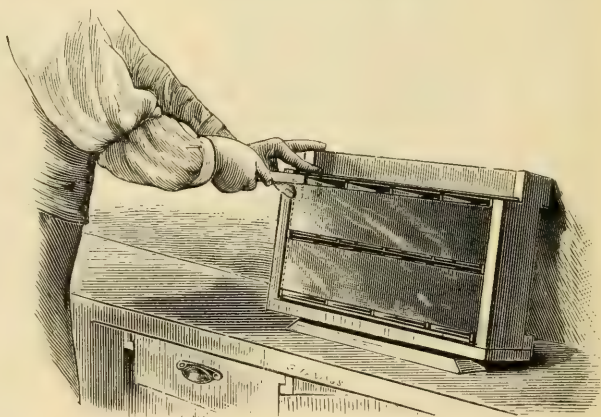


FIG. 1. THE METHOD OF PUSHING THE SECTIONS FROM THE WIDE FRAMES, WITH THE PUSH-STICK.

bottom-bar, taking pains to get exactly in the middle of the frame and under the corners of the two middle sections. The advantage of the jack-knife is in its being wedge-shaped, and so loosening the bottom-bar more completely than the case-knife. Care should be taken never to pry under the middle of the common section, as they will spring just a little, making a crack in the comb, allowing the honey to leak, although so slowly that it will probably not be noticed till after the section is crated, making a dauby package to put on the market.

Loosen the top-bar in the same manner. Now take the end of the push-stick with the shoulder,

and start each corner. I usually go around in this order:

2	1
3	4

This keeps the tops of the sections a trifle ahead of the bottom. Possibly it is habit or prejudice, but it doesn't seem as if the sections bind quite so much so, as they do if the bottom is ahead.

As soon as you have started two or three pretty solid corners you will realize the advantage of the shoulder on the push-stick to keep it from slipping and gouging the section. Change ends with your stick, and push carefully around in the same order as before, except that you push in the middle of the frame just under the top-bar, above and in the middle just over the bottom-bar below. Keep going around till you get the sections clear from the frame. I usually go around about three or four times. If you push one corner too far ahead it racks the section, causing a leak.

Take the empty frame off the machine, and hang it back in one side of your super. In taking the sections off the machine I take two in each hand, catching the corners of two between my thumb and forefinger; and in putting them down I take care to pile them nicely. You need have no fear of making too large a pile on account of mashing down the bottom sections, as I have seen between twenty-five and thirty thousand in a pile, with nothing at all between the tiers; the only thing about it different from the ordinary way was, that one layer faced one way, and the next layer the other way, and so on up, instead of having them all run one way and overlap one another, as is generally done.

C. C. MILLER, JR.

Upon reading C. C. Miller, Jr.'s part of the programme, we are convinced that he is a veritable "son of his father." I think it is not too much to say of C. C. Miller, Sr., that he has a very simple and clear way of expressing his ideas; and if we can judge any thing from the article received from the son, we should say that C. C. Miller, Jr., will follow closely in his father's footsteps. We think our readers will find the two articles will throw considerable light on just how to remove sections from wide frames.

IS DOOLITTLE'S THEORY OF SWARMING CORRECT?

QUEENS REMAINING IN THEIR CELLS, AND BEING FED.

ON page 434, June 1, Mr. Doolittle gives us some interesting reading about swarming, etc. His article is excellent. Enough is said in a nutshell to convince any intelligent reader of its truthfulness and solid facts. June 15, page 462, we see Mr. Dewey disagrees a little. He admits Doolittle as good authority, but the man to contradict him must be well posted. Of course, it takes an old veteran of thirty years' service to command the floor and make Doolittle take his seat among his junior brethren. Several queens must be heard piping, and be hatched and liberated in the hive before swarming takes place. I will here admit, that Mr. Dewey is right in what he has seen and heard, but is wrong in disputing Doolittle; for Doolittle is also correct in what he has seen and

written about in his article. Both these facts, and many others, occur within the bee-hive and with bees. Only last year I was pleased to see, where only one queen hatched in a hive, three were piping. I searched diligently (for I wanted to capture them) for the other two, and finally discovered them in their cells, poking out their tongues through a small hole, and being fed by the bees, but also guarded, which confinement caused them to pipe. I smoked the bees off the comb and cut out the queen-cells; when they immediately cut themselves out of their little prisons. The piping of the queen in this hive ceased at once while I was working with the bees.

I had a queen several years ago that kept up piping for about a week while being caged. I can remember another that acted strangely. A cell was introduced into a populous colony, with cells of their own. In a few days she hatched and was heard piping, when my father and I agreed to stop swarming by tearing out all the cells. No use. She kept up her music a few days longer, when out with a swarm she went, leaving the parent stock without queen, cell, or eggs. I mention these incidents to show how strangely bees will act sometimes. In laying down my pen I want to say to Mr. Dewey, continue experimenting and gathering knowledge as do Mr. Doolittle and many others.

Worden, Ill., June 23, 1887.

H. R. Dow.

VARIOUS MATTERS, FROM CHALON FOWLS.

WHAT TO DO WITH SURPLUS COMBS AFTER CONTRACTING.

I WILL explain to our readers, that, during my college days in Oberlin, friend Fowls would frequently give his familiar knock on the door while I was wrestling with an idiom in the dead languages, or tugging over a problem in mathematics. His visits were always welcome; and as he is an enthusiast on the subject of bees, and full of new experiments, I used to enjoy an hour or so chat with him. As I had not heard from my former visitor for some time, I wrote him a short time ago, asking him in regard to some of the things which he had under experiment—whether he still held the same opinion about some things that he did a few years ago while I was at Oberlin. The reader will readily divine the questions which I asked, from the replies which friend F. makes. His letter is as follows:

CARNIOLAN BEES.

Friend Ernest:—Yours was received some time ago, but I did not answer at once, as I wanted to take time enough to answer your questions. Bees wintered well, but came through short of stores. They have been on short rations all the spring. As a consequence, they have not bred up as well as usual. Bees will breed better, I find, with sealed honey along the top of the frame. I have one swarm of Carniolan bees with imported queen, and they did winter splendidly, and, having plenty of honey, bred up early and swarmed in May.

If I remember rightly, you once reported the Carniolan bees would not repel robbers very well. Ours do, equal to the best Italians. I have not tested their honey-gathering qualities much yet. They

are quiet on the comb, but I don't know about the crosses. I got a dollar Carniolan of Dr. Morrison, and her bees are the worst to run and cluster and drop off that I ever saw. If I have to use much smoke they will all boil out of the hive.

REVERSIBLE FRAMES.

You ask if I still like reversible frames as well as I did a year or so ago. I will answer, Yankee like, by asking if you have ever heard of any one who has given reversing a fair trial who did not like it better. To use them for only a swarm or two, I do not think a fair trial. I hived forty swarms on them two years ago, besides the few we had last year; and were it not for the fact that I can get the brood well up toward the top-bar by contraction I would use them, even if they cost ten cents extra instead of one. I have over 500 reversible frames, and wish every comb in my apiary were reversible. With new swarms I have reduced reversing to a practical system. I give new swarms five or six frames filled with foundation. If more frames are given them than the queen can occupy, the central ones will be solid with brood and the outside ones solid with honey, provided they are reversed at the right time. The proper time to reverse the first time is about the twelfth or thirteenth day after hiving. At that time the frame will have honey at the top, sealed brood in the center, and eggs and larvæ near the bottom. If any of the honey is capped in the top of the frame it should be lightly mashed down with the flat side of a knife. In nine or ten days more they should be reversed again, when the combs will be solid with brood; but they need to be reversed now so as to throw the larvæ and eggs above and the sealed brood below, where the bees are not inclined to store honey, and the queen will fill up the comb with eggs as fast as the bees hatch, so that in nine or ten days more the capped brood is all replaced by eggs and larvæ, when they are to be reversed again, and so on as long as honey is coming in fast enough to crowd the queen. The object is to reverse just often enough so as never to let any brood hatch in the upper part of the frames.

I will try to answer your other questions more briefly.

I use the old-style Heddon super; wide frames are out of date with me, and I don't use separators, but put full-sized starters in the sections and get combs straight enough when there is a good flow of honey. I think it might pay to use separators when honey is coming in slowly, but my supers will not admit of their use anyway.

The white clover began to "give down" the 18th. The bees are whitening the combs along the top-bars now, which tends to make the apiarist "feel good."

GILHOOLY'S VISIT.

I was just putting on the supers when along came neighbor Gilhooly.

"Hello, Fowls, you are shifting about, I see. Now, what are you trying to get that big swarm from that big chaff hive into that little Heddon hive for?"

"I am going to run them for comb honey, and my supers fit this hive."

"But you can't put ten frames in an eight-frame hive, and you have two frames in there now."

"No, they are dummies, made to fill the place of each outside frame. There, you see here are six

frames well filled with brood, and that just fills the hive."

"But here are four left covered with bees."

"Yes, and I will just shake them down here in front."

"But they'll hardly find room in there between those six frames of brood."

"Well, then they can go up in the super."

"I suppose you have that row of old sections in your super with comb in for bait; but why didn't you put them in the middle instead of the end? They would work at them more readily right over the center of the brood-nest."

"Yes, but they will occupy them promptly any way; and as they will be finished before the others, I would rather give the empty sections the most desirable place over that part of the frames containing the most brood."

"Why, look here, Fowls; here are eggs and larvæ in these four frames you have left in the chaff hive."

"Well, I'll put them in here. You see I have a lot of nuclei here, and their queens are not mated yet."

"What! are you raising queens for market too?"

"No; but I am starting nuclei as fast as I can get the cells, so as to have their queens laying by swarming time. I wish I could have a nucleus with a laying queen ready for every swarm that comes out."

"What now? some new hobby?"

"Why, that's the way I prevent after-swarms. I hive the new swarm on the old stand, so as to get all the flying bees, and set the old hive to one side till evening, when I carry it, with the comb of brood and young bees, and unite with one of these nuclei. In a few days the nuclei will be a powerful swarm for business."

"But, won't they swarm?"

"Not usually. The nucleus with a laying queen stops all that for at least the time being; but if they do, it will be a prime swarm any way."

"Why, Fowls, what does this mean? You must be crazy to saw new brood-frames in two."

"Oh, no! that's the way I make half-depth brood-frames."

"A'n't you going to have any bottom-bar?"

"No; they are only $4\frac{1}{4}$ inches deep."

"Well, what's your object in using them any way?"

"Oh! I just want to try Hutchinson's new departure, hiving new swarms in empty brood-chambers."

"Well, why don't you use your regular Simplicity frames?"

"I tried that last year, and it didn't work well. His directions are, to contract the brood-nest; and if you contract on the side, it makes it too narrow."

"But I don't see your hives to fit these little bottomless frames."

"Well, they are easily made. Just make a box half an inch smaller all around than the Simplicity or chaff hive; drop it in the bottom, put in the little frame, then the queen-excluding honey-board and super, and you are all right."

"Well, neighbor Fowls, it seems to me your new swarms treated in this way will be in mighty bad shape this fall for wintering."

"Perhaps so, if I were to leave them so; but I can easily shake them off the little combs, and let them have some old black combs for wintering."

"What will you do with the brood?"

"Let the bees care for it till it hatches in the upper story."

"Well, I must be going."

"Well, call again."

CHALON FOWLS.

Oberlin, Ohio, June 22, 1887.

Many thanks, friend Fowls. You seem to be as full of enthusiasm as you used to be, and I think the readers of GLEANINGS will all agree with us that your visit, through the medium of GLEANINGS, has been profitable to all.—In regard to reversing, I do not believe I can answer your Yankee question. For some reason or other we have not heard very much lately in regard to it. Knowing that you were once an advocate of the principle, I desired to know what you thought of it, even up to the present time, and am glad you like it. If I am correct, you are using Simplicity reversible wired corners. We are using them in our own apiaries, to the exclusion of all others. Your idea, whether original with yourself or not, of bringing the brood close to the surplus department above, by means of reversing, is good. Since receiving your manuscript we have tried a colony with the frames reversed as you direct. Up to the present time the plan seems to be working favorably, but we have hardly had time to see what the results would be. Mr. Gilhooly's visit reminds me somewhat of the visits I used to make you. I do not know that I propounded so many practical questions; but I am sure that all of us, as well as your friend Gilhooly, will understand your system of contracting, and what you do with the surplus combs after contraction. Your method of converting Simplicity or chaff hives into small Heddon hives, with half-depth frames, is quite feasible. Those who do not wish to go to any great expense in testing the Heddon and Hutchinson systems can do so in the way you suggest, at a very small outlay, and yet arrive at practical results. We are in hopes that Mr. Gilhooly will call on you again, and that your reporter will be as faithful in transcribing the conversation as he did the above.

INFLUENCE OF THE QUEEN.

HER MAJESTY, THE RULER.

OF late I have noticed that some have been speculating, or, rather, guessing, at the sphere or influence exerted by the queen. Some have said, that the swarming impulse was due to the influence of the workers, and that the issuing of swarms was also from the same source. I have no doubt but that these sayings have been to a very great extent the result of guesswork, or the theoretical speculations of those who never probed the matter very deep. Now, the word queen would be a term misapplied if it did not refer to a personage having power to rule; further, I do not believe that it would be an overstretch of facts were I to say that the entire creation, so far as animated nature is concerned, is governed or controlled to a great extent by a leading head or ruler. Take, for instance, a herd of cattle, and it will be noticed that some member of the herd invariably directs the course and footsteps of the rest. If they get into mischief, some particu-

lar member is the leader. This same principle can be traced from man on down to the insect-world. It seems to me, that at this stage of progression this question ought to be settled, although it looks at first sight as if it were a matter of but little practical utility; yet when we come to write out the minutiae, just such questions become important and oftentimes become the most difficult to answer. Now, I do not expect to be able to settle this question in the minds of all; but to those who doubt the influence and ruling power of the queen, let me say, go to a colony of bees 20 or 30 minutes before a swarm issues; place your ear to the hive, and keep it there until the swarm issues; then tell me the result of what you hear, and see if it does not correspond with the following:

1. The busy hum of worker bees, broken only by the piping of an excited queen. This state of affairs continues, and finally you hear a low, peculiar guttural sound, and simultaneously with this sound you will hear a great roar, and the issuing of a swarm is the order of the moment. Now keep your ear at the side of the hive, and you will hear the loud roar of the bees gradually subsiding; again will you hear the low guttural command of the queen, and again will the worker-bees pour forth with greater vigor, and this continues until the queen leaves the hive. When the order of march settles to a gradual quiet movement, you will no longer see the bees coming forth in gushes, at the command of their supreme ruler. The above applies more particularly to first swarms; after-swarms issue from a different impulse; yet the same command precedes all swarms of first or after origin. There are other conditions in which bees will swarm out or leave the hive in a body, where this command may or may not be heard.

Siam, Iowa, June 14, 1887.

R. B. ROBBINS.

On one occasion, several years ago, while we were standing at the entrance, in front of the hive, we heard a sharp piping of the queen. It was long and continued. Immediately after, there was a rush for the entrance, and a large swarm issued. On other occasions we have stood at the entrance of hives, immediately prior to and at the time the swarm issued, but did not hear the sharp note of the queen. Both of these instances were with first swarms. In the second case the queen may have uttered a sharp note; but certain it is, we did not hear it. We should be glad to hear from others as to whether they have noticed this singular phenomenon before the issuing of swarms.

A SHORT STORY WITH A MORAL, IN TWO CHAPTERS.

CHAPTER I.—BLASTED HOPES.

THE best imported queen you sent me arrived safely; but while introducing her she flew off the frames and I have not seen her since, although I left the hive open an hour, thinking she might come back. If she entered one of the seventy stands we have, I shall never be any the wiser. If you have another best imported queen as nice as this one, please send her at once.

MRS. A. F. PROPER.

Portland, Ind., July 5, 1887.

Now, none but those who have passed

through a similar experience can realize just how our good friend felt at the loss of that select imported queen. Imagine, if you please, six dollars or more taking wings and flying away right before your face and eyes; and to add to the disappointment, the queen happened to be one that exactly pleased, so far as looks were concerned. Did you ever have a queen that just suited you to a dot—so much so that you felt like saying, "There, I would not take a ten-dollar bill for that 'lady' just as he stands there on the comb"? Then to have her missing is one of the most perplexing and provoking things I know of. This story, however, was to have two chapters, and I take great pleasure in presenting you now with chapter two.

CHAPTER II. — BLASTED HOPES DISPELLED, AND BRIGHT HOPES ENCOURAGING TAKING THEIR PLACE.

I ordered another queen of you this morning in the place of the one which flew away while introducing, July 1. I had a swarm come off in the morning of that day; and while cutting out the cells one young queen hatched, but the next day I found her dead in front of the hive. This afternoon I thought I would look in and see what was the matter, and give them another cell. I was astonished to find eggs in several combs, and on looking further I found my imported queen, as large as life, and apparently very much at home. I know I can not be mistaken, for I noticed particularly when the queen arrived, that she had the point of the right wing clipped off a very little in a rounding manner, and her shape seems a little different from the rest of my queens. She is in another part of the apiary altogether from where I introduced her, and the surroundings are not at all alike. I hope you will not have sent another when this reaches you, for I can not make use of two imported queens, and there is no one here to whom I could sell such an expensive queen. This will reach you by the next mail; and if you are not *very* prompt, I think it will reach you in time.

MRS. A. F. PROPER.

Portland, Ind., July 5, 1887.

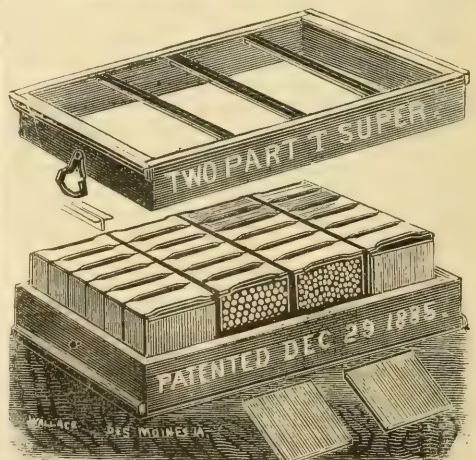
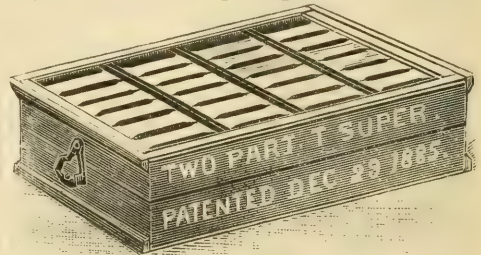
Now, then, friends, if you know what it is to feel keen disappointment you may also know what it is to feel real pleasure. I have sometimes thought that it is only by these strong contrasts that we are enabled to take in, to the fullest extent, the pleasant things of this world. He who has never known sickness knows not the joy of full health; so it is only he who has known loss that can feel, to the fullest extent, a thrill of success. If our good friend is not light-hearted, I am no judge.—Now one word in regard to queens getting into other hives. There is oftentimes something very strange about the way they turn up in unexpected places, and I have been able to explain it only by supposing they crawled or hopped about at random until they accidentally came near enough to hear the hum of some hive. Being attracted by this they crawl in, sometimes to be stung to death, but very often to be well received, and supplant the reigning queen, as in the above. A laying queen will almost always receive the preference over a young queen that has not commenced to lay; and this is a hint in introducing. We can nearly always let a laying queen right loose in any hive where there is

a young queen recently hatched. Luckily for our friend, our imported queens were out, and we were waiting for another shipment, or we should probably have made trouble by our usual promptness.

THE TWO-PART SUPER.

SUGGESTIONS ON THE CONSTRUCTION OF SUPERS, FROM J. M. SHUCK.

WITH the aid of the cuts, little description is needed. The sections are set in one half, and the separators between the end sections in the rows, and the supers are slipped in, then the other half of the super is slipped over the sections, and the two parts locked together by the clasps shown at the ends of the case. The T supports for the sections are made either by nailing metal strips to the outer edges of the partitions of the rows of sections, or wholly of tin, as shown in the engraving. The T rails in this



SHUCK'S REVERSIBLE SUPER.

super are nailed fast in their places, and the super is made very stiff and serviceable. With proper use it should last fifty years or more. The blank tops and bottoms to the sections shown in the cut are to keep the tops and bottoms of sections clean, and they serve the purpose admirably, as the sections come from the super cleaner than they can be scraped after coming from any other case I ever saw. The super may be used either with or without these blanks. The separators at the ends of the rows of sections prevent the bees from propolizing the super and thus fastening the sections; and the super is slipped off the sections as easily, and in less time, than it takes to put the sections into the super.

With the tins for supports, separators the full length of the case may be used between the sections as well as at the ends of the rows of the sections. Full bee-space is provided at the bottom and top of the super, and the super is invertible without any adjusting, fussing, or tinkering. J. M. SHUCK.

Des Moines, Iowa, June 13, 1887.

LITTLE HONEY IN MISSISSIPPI.

HOW MANY DRONES MAY BE CAUGHT IN A DRONE-TRAP.

MY bees commenced well and early in the spring, but at present they are gathering but little honey. I commenced this spring with 6 colonies. I bought 3 in box hives, which I transferred into new hives. One colony, the Italians, cast a very large swarm on the 28th of April. Two black colonies cast swarms on the 29th. The same two blacks cast swarms a few days later, making 5 new swarms. None of the others have swarmed, and I believe they have given up all idea of swarming, as they went to work killing off their drones. One of the colonies I bought I did not transfer until May 26, waiting for them to swarm out; but they seemed to have an oversupply of drones, so I set my Alley drone-trap in front of it two evenings, and myself and wife counted what we caught, and were surprised to find we had about 2200, and there still seemed to be plenty, which the bees went to work at and are killing.

I have taken off in 1-lb. sections, about 300 lbs.

I sent and got an extractor, and thought to use it; but as the honey-flow slacked off I have not done so.

I learned, a few days ago, that friend Gentry's bees were dying, and that he said from starvation. He had shipped some honey in barrels, so he ordered it sent back to feed his bees with. I understand that another gentleman at Beulah was losing his bees in the same way. They have their apiaries some 7 or 8 miles apart, on the east side of the Mississippi River, while my own is located on the west side, and near the river. Mine are in a densely wooded country. I have sold what honey I have had so far at home, or at our little county seat, at from 12 to 15 cts. per section. My neighbor bee-keepers run for extracted honey, and generally ship in molasses-barrels, and get but little for it.

WHISKY VERSUS BEE-STINGS.

On Saturday, June 4, a negro man in the neighborhood (Henry Wilson) having, a few days before, found a bee-tree, concluded that he would cut it and get the honey; so, filling himself with whisky he cut the tree and went straight in to where the bees were. They covered him up. There being a bayou of water close at hand, he sprang into it, thinking thereby to get clear of the bees; but, not so. They still clung to him. His companions got him out, but before they could get the bees off from him he was dead. Thus you see bees and whisky will not work well together.

R. J. MATHEWS.

Riverton, Bolivar Co., Miss., June 23, 1887.

Friend M., I do not want to have anybody think I am glad to hear that any one is dead; but when I saw your heading I was a

little afraid that you might have another item recommending whisky as a remedial agent for bee-stings; but I am just fanatic enough to prefer not to have reports of that kind, even when appearances indicate that whisky saved a life. Better let a man die occasionally than to start so many to drinking because "the doctor advised it." Well, you see your report is just the kind we wanted. This colored man got full of whisky, evidently with the idea that it would counteract the poison of the sting. It did not, however, and he died. Perhaps we can't tell exactly whether it was the whisky, the stings, or the water, that killed him. But this we do know pretty surely—if he had not taken the whisky he would not have died. In regard to selling off the honey so as to let the bees die, I would advise your friends not to extract quite so closely. Leave a pretty good supply in the brood-chamber.

CELLAR WINTERING AND OUTDOOR WINTERING.

FRIEND POPPLETON CONSIDERS A STRONG STATEMENT IN MR. HUTCHINSON'S NEW BOOK.

FRIEND ROOT:—On the first page of GLEANINGS for June 1, appears a review of a letter of mine to friend Hutchinson. The differences of views between friend H. and myself are on subjects of interest to bee-keepers; and a further discussion, not controversy, may be wise.

In figuring up the cost of cellar wintering, friend H. has only, it seems to me, given the shell and left out the kernel of the matter. He has allowed nothing for the wear and tear, and even a cellar won't last always without some work and expense on it, and he has made no calculation whatever for care and supervision of the cellar while the bees are in it. I have had but little practical experience with cellar wintering, but have always understood that the best-constructed cellars had to be watched more or less during the winter, to preserve proper temperature, etc. Nearly all persons with whom I have at times talked, who have wintered bees successfully in cellars, have insisted on the necessity of keeping fires in the rooms over the bee-cellar all winter. This supervision, if really necessary, as I am led to believe it is, is really much more costly than all the items enumerated by Mr. H.; and, above all, it is one of the things which can not be trusted to any one except the master himself.

During four different winters I have been away from my bees (in Florida) from about Dec. 1st until the latter part of March, and later. I should not have dared to risk this, had my bees been in any ordinary cellar, such as could have been built for less than three or four times the cost of those he bases his arguments on. This being free to do something else in winter has been worth many times over the value of the 200 or 300 lbs. of honey that cellar wintering would have saved me. I still think that the amount saved by cellar wintering, all things considered, is too infinitesimal to be taken into account.

Friend H., your explanation of what you meant by a "perfect system" only makes it worse than

before. The truth is, that no system can be called *perfect* until it has proved its perfection by several years' trial and success by many different persons in different localities. Many of us older heads have supposed that we had found the royal road to success, and would reach it, too, for a series of years, when some climatic or food changes would occur, and the goal would be still ahead. In your quotation from Prof. Cook, I see two "ifs," and *perfection* contains no "ifs." Neither do I think that the professor is right in his opinion that chaff hives are not safe in severe winters, *if properly constructed and handled*. I think they will be found fully as safe as cellars, but wintering in cellars is much the best understood by the majority of bee-keepers, and it ought to be, for it has been practiced and experimented with about four times as long, at least, as have chaff hives. I venture the prediction, that neither of us will live long enough to see a perfect system of wintering in that Northern climate.

My reasons for saying what I did about your management not being adapted to outdoor wintering was based on my own experience. For several years, almost the only losses I had were among the half-dozen or so colonies that I had worked on the top-story plan. I could give my theory why I think such colonies wintered poorest, but I don't think it is worth while to take up the space, as the production of comb honey compels that method of management; neither is it necessary to point out the very obvious reasons why your neighbor, Mr. Donane, failed with chaff hives.

Friend H., an "experienced apiarist" is the very one who can make it pay to take time to practice spreading brood, especially so as this work comes previous to the honey season when one *has time* to care for, including this work, at least four times as large an apiary as he can care for during the honey season. It is when one takes into consideration how "to secure the greatest amount of honey with the least expenditure of capital and labor" within a given field that we see the need of doing every thing in our power to increase the average products of our colonies; and spreading of the brood is valuable, partly because it comes before the real working season is on us.

No, the taking of honey from the brood-nest is *not* one of the things of the past, nor is it likely to be soon. For several years I worked a few colonies on the double-story plan, on purpose to test this matter of which was the most profitable to use, and I came to very decidedly prefer the single-story plan for extracted honey. I also watched my neighbors quite closely, and those who used that plan succeeded best in both getting honey and in wintering. The question of "best food for winter" opens up the very important subject of what is good honey for wintering purposes, which is too important to be put off to the end of a rambling article on other matters. I have never seen any thing yet on that which fully meets my views, although it lies at the very foundation of successful wintering. I have often thought I should like to add my mite to that subject, but ill health has so far prevented.

I can not understand by what reasons Mr. H. has arrived at the conclusion that it is profitable to feed sugar-stores when raising comb honey, but not when producing extracted. It seems to me that the same rule applies to both in this respect.

So far as the comparative value of Italians and

blacks is concerned, I suppose Mr. H. and myself will continue to agree to disagree, we having arrived at different conclusions in that matter. To do justice to ourselves would require an entire article for each of the different topics discussed by us; but time and space forbid. It will be noticed, that these topics are all side issues from the main one treated of in Mr. H.'s book. A friendly discussion is necessary to bring out the true facts and theories of our chosen pursuit; but it is worse than folly to conduct it in any other than a fair and kindly manner. We should always bear in mind that others have the same right to their opinions that we have, and that possibly they may be right and we wrong.

O. O. POPPLETON.

Hawks Park, Fla., June 27, 1887.

Friend P., it occurred to me that friend Hutchinson's statement in regard to cellar wintering was altogether too strong; but I thought best to let somebody else take it up. Our bees have wintered so well in chaff hives for a good many years past, we could hardly ask for any thing better. Now, if somebody were to ask me how much I should want to put all these bees in the cellar, look out for the temperature, ventilation, dampness, and all these other things, and then take them out in the spring and get them all right on their summer stands, I should very likely say I should not want to undertake it for less than 50 cts. per colony. It is true, we don't need to carry in those great heavy chaff hives; but in that case the combs must be taken out and put into lighter hives; then, as I usually want them in chaff hives again in the spring, they would all have to be put back again into chaff hives. We have a cellar already made and unoccupied; but to fix it for bees it would have to be darkened, arrangements made for sub-earth or some other kind of ventilation; doors and windows would have to be operated during our frequent warm spells in the middle of the winter, by opening them at night and closing in the day time, etc. I think we could winter our bees in that way, without any question, and very likely with considerable saving of honey; but one hundred dollars would be no temptation at all for us to go back to the old plan of cellar wintering, that we worked on years ago; and I feel quite sure that we should not save one hundred dollars' worth of stores. May be I have become stubborn in the matter; but when the bees do so well by letting them entirely alone, it seems to me I am excusable for being a little bit prejudiced against putting bees into cellars. Our variable Ohio climate, very likely, has much to do with our decision in regard to wintering. Ernest adds, that our 200 colonies did not consume, on an average, more than from seven to ten pounds of stores per hive during the past winter. If this be true, there could not have been a very great amount saved in the consumption of stores by putting them in the cellar. He also adds, that one hive, on which the chaff packing was omitted by mistake, consumed perhaps nearly double the amount of stores given above; so it makes a difference, you see, as to how our bees are fixed to go into winter quarters outdoors.

ITALIANS, CARNIOLANS, HOLY LANDS, AND CYPRIANS.

WHICH RACE IS THE BEST, AND UPON WHAT CRITERION SHOULD WE BASE OUR JUDGMENTS?

WE notice that the different races of bees have their champions, and undoubtedly they think they are really superior to the pure Italians. Now, if these claimed points of superiority over the Italian bee can be maintained by actual practice, then we must acknowledge the Italian bee is in the background; and the next point to arrive at is, which of the other races stands at the head, all points considered? It is claimed for the Carniolans, that they are the most gentle of all bees, do not gather propolis, are excelled by none as honey-gatherers, are better nurse-bees, breed up earlier in the spring and later in the fall. The champions of the Holy Lands have about the same story to repeat, and the advocates of Cyprian superiority will tell us, "If we know how to handle Cyps they are just as gentle as any other bees;" and some even go so far as to say they handle theirs without smoke, but do not say whether the bees make them smoke for so doing or not. The great majority tell us that the Italian bees are the best—first, last, and always, and with that class we stand; but we are ready and willing to accept some other bees instead, whenever their superiority is shown. Can breeders of any other race of bees show such yields of honey as have been produced by Italians? Will not the Italians breed up as early in the spring as need be, if they have been wintered as they should be? And, again, will not the Italians breed up just as late in the fall as the season will really warrant them in doing? Is it any extra quality, when any race of bees will breed excessively in season and out of season, as it is claimed the Carniolans do? and is it any point of superiority when we say they will not gather propolis? If so, why is it, and how is it? A breeder of Holy Lands states one point where his bees are better than the Italians, and we certainly believe it, if it is true; and that is, the Holy Lands never sting any one when they are astray, but the Italians are guilty of constantly prodding it to a person if he gets near them when astray. It is not perfectly clear to our mind just what is meant by the word "astray" when used in this connection. Is it the bees or the bee-keepers that are liable to get astray? We fear greatly that it is the bee-keepers who are guilty of such actions; and perhaps a real good healthy half-dozen Italians would do much toward bringing them back to the path of rectitude. But, letting this all pass, is there any one foolish enough to keep bees because they do not sting, or because they do not gather propolis? or because they are very prolific? We think not. We keep bees because we get our bread and butter by so doing, and for the pennies to lay aside for a rainy day; and now if there is any race of bees that will furnish us more bread and butter, and put more pennies in our pocket, they are the very bees we are looking for, and the ones we want to hear about.

Rochester, O., July 5, 1887. M. W. SHEPHERD.

Friend S., we think your remarks are right to the point. We keep bees for the pennies they may bring us. That race which, from its superior merits, can give us the most pennies is the one destined sooner or later to be our choice. From our own experience,

as well as from the multitude of reports which pass our eyes, we never yet have found a race of bees which would produce more pounds of honey than the justly praised Italians. That race of bees which will make a decided increase in our honey-crop from year to year will very soon crowd themselves among us. As long as the large majority stick by the daughters of sunny Italy, and their crosses, and so few, comparatively, say any thing in favor of the other races, we must concede the palm to the Italians.

MUTH-RASMUSSEN'S SUPER-SPRING.

VARIOUS MATTERS.

IN your foot-note to my article, p. 466, you ask: "Are we to understand that one spring is all you use to each division-board?" Yes, certainly. One spring is enough. The springs are quite strong, and it requires even some little force to push them down into place, if they are properly adjusted to the space between the division-board and the super. Experience will soon teach what tension is necessary. A button-hook might perhaps do to draw the spring with (I have not tried it), but it would be too small and short for replacing the spring. This can, however, be done by pressing with a small flat stick (as the side-piece of a brood-frame), or any other flat implement you may happen to have at hand, on top of the loop of the spring. I find that it hurts my hand to try to force the spring down without some such aid. The button-hook, if strong enough, might be carried in the pocket; but as my hands, when at work with the bees, are always more or less sticky with honey and propolis, I avoid as much as possible putting them in the pockets, and prefer having all the required implements in the tool-box, which I carry around with me.

To avoid misunderstanding, let me say to the readers of GLEANINGS, that in my original drawings I had represented the spring in the position which it occupies in the super. If you will turn the page around, so that the eye of the hook is up, you will have the correct position—and I think a better view—of the spring.

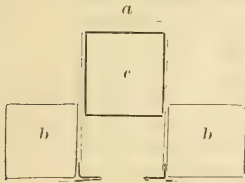
In my written explanations I therefore called the arm A "horizontal," which it will always be, when in use. The engraver has, however, turned the spring over on its side, and to correspond with this position the editor calls the arm A "perpendicular." Yet in the second column he uses the word "horizontal" twice. Here is where the misunderstanding might come in, as if the "horizontal" arm and the "perpendicular" arm were two different parts of the spring, while in reality they are one and the same thing.

Now let me object a little to your objection. While you admit that the device is quite ingenious, and perhaps the best thing that can be devised for the purpose, yet you cry out, "A little complicated," which is only a slight variation of your usual expression, "Too much machinery." Something must certainly be used to keep the frames close together, and what can be more simple and effectual than a spring which will adjust itself to slightly varying distances? You must acknowledge that it is a great way ahead of wedges, and also that it is much quicker adjusted than screws. The space it occu-

pies is too narrow to admit of drawing it out with the fingers, and therefore it becomes necessary to have a hook for that purpose. One hook is enough for each operator, and the expense for springs is only a trifle, besides being a permanent investment. In fact, they need not cost any thing, if you can find some old bed-springs, for you can make them yourself when you have leisure, and all the tools required are a vise, a hammer, and a chisel. If the springs should come into general use it might perhaps pay to make them by machinery; but then the trouble of many different sizes might arise. I therefore think it better that each one should make his own springs, using only the original shape as a pattern.

Let me here say, that the super-spring is not intended for reversing-arrangements. For such you must use something that can not slip, and here the screw is perhaps the best implement.

TO GET THE LAST SECTION IN THE T SUPER.



On p. 460, Dr. Miller speaks of the difficulty of getting the last section into the T super. I have never, as yet, seen the T super; but from the descriptions I think I can form a pretty correct idea of what it is like.

Let me suggest, that

the doctor try the implement here illustrated. A strip of tin, *c a*, 26 inches long, is cut off, the width of a section, and bent in the shape of the letter U. In the bend is fastened a semicircular block of wood, *a*, as thick as the width of the tin, and with a diameter of $4\frac{1}{4}$ inches, or a little over. The U is placed upside down on the T tins, between the two adjoining sections, *b b*, and the last section, *c*, is slipped into the top of the U and pushed down between its smooth sides, where it will have nothing to catch on. When the section is in place, without drawing the U.

"Too much machinery," I hear you say again. Well, let the doctor try it and report. If it does not give satisfaction, there is not much loss.

ABOUT ILLUSTRATIONS.

There is no doubt that illustrations are a valuable aid to the full understanding of much that we read. I shall soon give a description of an excellent and cheap home-made camera-obscura, with the help of which any one can easily illustrate what he wishes to describe. The artist's camera which you advertised some years ago, and which I bought of you, is too small, and necessitates transferring the picture; while with the one I have in view, you draw directly on the paper, and on a larger scale, which will be easier for most artists. WM. MUTH-RASMUSSEN.

Independence, Cal., June 27, 1887.

I plead guilty, friend M., to the charge that I so often make, of complication, or too much machinery; and that is just exactly what I should say of your invention figured above; that is, it seems to me I would rather get along without it than to have it around. But I might be mistaken, if I made it my regular business. Ernest says he has been bothered to some extent by this very matter, and there is no question but that your device will work every time. Will the friends who make a trial of it please report?

WINTERING BEES.

J. E. POND'S EXPERIMENTS.

WHY is there such a difference in the results from wintering our bees? One is uniformly successful, while another loses a large percentage, if not all, although in practically the same locality, and under the same climatic differences. I am led to ask the above question by reading of the ill luck (I suppose) of many in the same situation as regards climate as myself, while I have not lost a colony by reason of the weather for over 16 years, and wintering, too, on summer stands. With this question in my mind I prepared my bees (ten colonies) last fall for the purpose of experimenting. Some were in chaff hives, some in double-walled hives with dead-air space, two in $\frac{3}{8}$ -inch, and two in $\frac{1}{2}$ -inch hives, and all on Simplicity L. frames, $17\frac{1}{2}$ long and $9\frac{1}{4}$ deep. They all came safely through, and in excellent condition, with but little difference in strength, although with considerable difference in the amount of stores consumed; and, strange to say, a colony in a chaff hive consumed the most, and one in a $\frac{1}{2}$ -inch-thick hive the least; and this, too, by careful weighing on the same day in fall and spring, $21\frac{1}{4}$ lbs. being the most consumed, and $8\frac{1}{2}$ lbs. the least, from November 11th to March 5th, each colony being as nearly like every other in the fall as ten hives could well be made, as regards strength and stores, and all being hived on nine frames in a $14\frac{1}{4}$ -inch-wide brood-chamber.

Some of these colonies were kept in two-story hives with full access to every part. Some had a Hill device over the frames, the others having an inch or more space over the tops of frames, given by putting on a rim about an inch deep covered with common burlap. All the hives were given full width of entrance, and all had 5 or 6 inches of forest-leaves packed moderately hard on top of the frames, over the covering quilt made of burlap, top ventilation being given by boring a two-inch hole in each end of the cover. The colonies were all prepared alike, except the difference mentioned in the hives, and all had a southern exposure, with a thick hedge $6\frac{1}{2}$ feet high on the north and west sides. The brood-chambers of all were prepared as follows:

Nine frames, the upper halves filled with sealed stores; none in the lower half; in November the hives were all examined, and the clusters forced by changing frames to the west side of the hives. Those wintered in two-story hives had three or four frames of honey in the upper story, the rest being empty. The queens in these were confined to the lower story, the workers having access to the upper, if they chose to go there, which they did, and from which they transferred all the honey.

My deductions from the above are, that cold does not kill our bees, and that, if the hives are so prepared that the excess of moisture is so disposed of that it can not freeze in the brood-nest, there will be no trouble with bees dying in winter, or dwindling, or being depopulated by diarrhea in spring. In the matter of stores, the cells were practically all sealed, and pollen was distributed through the hives as it ordinarily would be in the fall, none of it being removed when being prepared for winter.

If this immunity from loss in my apiary were but a single instance, I should deem the matter one of

chance and good luck only; but when, with the same form of protection, I obtain the same results year after year, I have the right to think and believe that I have solved the winter problem, and the best of reasons for making no change in my wintering method. I can but say, that the "bridge that carries me safe over" will probably carry others safe over also, and I advise them to do as I have done, this coming fall. One thing, however, must be understood: I am particular in preparing my bees in precisely the same way and manner each year; and while a different plan may be equally safe, I can only advise doing just as I have done, as a change may bring different results from those I have invariably found to follow my own course of procedure.

This wintering question is the most troublesome one we have. Settle it, and bee-keeping is placed on a sure and certain footing. If any try the method outlined above, I should like to have them report next spring the results they find, stating full particulars at the same time.

J. E. POND, JR.

Foxboro, Mass., June 27, 1887.

THE PIPING OF QUEENS.

CELL-PROTECTORS, ETC.

ON page 462, GLEANINGS for June 15, I see Mr. Dewey thinks Doolittle is not correct regarding the piping of queens, and after-swarms, as I gave on page 434. Bro. Dewey says: "I most emphatically deny that there is only one queen allowed to leave the queen-cells at a time, or that only one pipes at a time, or that, as a rule, only one queen accompanies the second, third, or, in fact, any after-swarm." Now, friend Dewey, won't you please turn to page 434 again, and read carefully and see if Doolittle said any thing to conflict with your views, or made any assertion to the effect that *only one* queen piped at a time, or that *only one* queen accompanied after-swarms? I have carefully read my article over, and do not see any such assertion made. No one can say all that could be said on any subject in one article; and as it is necessary to condense matter as much as possible, to give to all room in GLEANINGS for a few words, I do not go over all the ground of the past, many times, in order to be brief. All who have read my writings in the past, know that I believe that more than one queen pipes at a time, and that more than one queen goes with after-swarms; and, to make all plain to new beginners, I will say this in addition to what is written on page 434: A queen pipes only when there are other queens (*in cells*) in the hive, of mature age. To make it a little plainer: A young queen may mature and hatch two or more days before any of her rival sisters come to maturity; but as far as I have observed, she rarely if ever peeps till some of those sisters come to maturity. As soon as this occurs, the first hatched seems to get in a rage and begins to peep; and in from six to eight hours after maturity, although kept back in the cells, these rivals begin to peep, often half a dozen answering (the one having her liberty) at a time. These queens being in their cells give off a kind of muffled sound, so it is easy to tell their peep from the one which is out. I spoke only of the liberated queen as regarding piping on page 434. This is plain, is it not, friend Dewey? Well, when second swarming commences this queen that

has had her liberty all the while, leads, or is about the first bee out, often flying back and forth several times, as if to urge the bees out. In the hurry and bustle of swarming, the queen-cells are left to themselves for a time, and one or two, sometimes more, of the mature queens I have spoken of, hastily finish biting the cover of the cell off, and get out with the bees in the air before the guards in the hive realize what has happened, so that two or three queens with a second swarm is quite a frequent occurrence; but it is a rare thing to find more than three with such a swarm. Now, if a third swarm is to issue, the guards collect about the cells again, allowing one queen her liberty, and keeping the rest in their cells. If more than one are out in the hive, all are killed but one; for queens at liberty with the bees intent on swarming, soon get together and all but one are killed. At third swarming there are fewer bees and more mature queens, as a rule, than at the time of second swarming, so that, when the cell-guards become "routed" by the hurry and bustle of another swarm, more queens leave the cells, so that I have known as many as from 12 to 20 queens with a third swarm, but rarely more than from 2 to 5. Thus you will see "we two D.'s" agree pretty well finally, after the rest of the story left untold on page 434 is brought out.

Now, what I do claim, which many of the brethren don't seem willing to admit, is, that queens at maturity are white-looking, feeble things, and can no more peep nor fly than a newly hatched worker; and all queens which can fly at hatching matured from eight hours to a week before, but were kept back and were fed in the cells by the guard-bees. Who ever knew a queen which had just cut through the covering to her cell, in a queen or lamp nursery, to be able to fly? If any one ever did, then I am down. If not, those opposing may well investigate.

QUEEN-CELL PROTECTORS.

Before closing I wish to say a word or two about those queen-cell protectors, spoken of on page 482. I see Ernest and the apiarist are not having success with them. I can not understand this, for many very flattering reports come to me from those using them, and I have not had a single failure from the first cell tried, some two years ago, till the present moment. The sample protector sent me has been in almost constant use for the past six weeks, giving birth to queen after queen, with a certainty which only those can appreciate who in years gone by have had cells by the dozen destroyed. The cell is pushed down in the apex of the cone as far as it will go, so that there is barely room for the cover of the cell to come open when the queen bites it off. I said I had not made a failure, by which I meant that in no case had the queen been destroyed before maturity. Where such a caged cell is put in a full colony for the purpose of superseding a laying queen, if the bees think their old queen doesn't need replacing they kill the young queen and drag her out at the entrance. I use only cells that will hatch in from 6 to 36 hours in the cell-protector. Perhaps using too "young" cells may be your trouble.

G. M. DOOLITTLE.

Borodino, N. Y., July, 1887.

You may be right, friend D., in your last suggestion. At any rate, when we were using the cell-protectors there was an almost entire lack of honey, and the bees were more

than once on the point of starvation. At such times they seem determined to tear down queen-cells. There have been so many favorable reports in regard to the queen-cell protectors, that we feel sure we must have made some mistake somewhere. On account of foul brood being in our apiaries we can not raise any more queens this season, and consequently are not able to test the protectors. We hope to make a further trial next year.—In regard to the piping of queens, if you will turn to page 537, current issue, you will see that there is still another D. discussing this same question. D. No. 3 says D. No. 1 and No. 2 are both right, as you state.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

FALSE STATEMENTS IN REGARD TO LIQUID HONEY.

THE boss of the printing-office hands us the following, which he cut from the *Cleveland Leader*:

An authority on canned goods reveals the interesting fact that most of the jellies in the market are made of apple-parings and cores. Sometimes the stock is kept so long that it will not make jelly, then they make strained honey out of it. —*Philadelphia Surgical and Medical Reporter*.

Friends of the *Philadelphia Surgical and Medical Reporter*, and newspapers in general, we beg to contradict your report. We don't know about the jelly part of it, but we are inclined to think it is as untrue as the part is in regard to honey. Nothing like even poor honey can be made from apple-parings and cores; and inasmuch as there is scarcely a town or village now in the United States where good pure honey is not kept on sale by some honest bee-keeper, we insist that the whole story is an impossibility. People are too well posted to be humbugged in such a way, even if the world is bad enough to do it. There may be poor honey occasionally put on the market; but the sensational scare, that it is made of stale apple-parings and cores, is an untruth. We should be glad to be told where any such article is kept for sale.

A LETTER FROM AUSTRALIA; THE DOOLITTLE METHOD OF INTRODUCING QUEENS A SUCCESS.

We have been introducing queens by Mr. Doolittle's method, and have always found it to succeed to a marvel. There is no doubt, that in making his plan known to the public he has conferred an immense benefit on bee-keepers, which I think they should acknowledge in some practical form. I may say, too, that J. W. Garrett tells us he has tried it, and never found it to fail. We introduced a laying queen two days ago, and in eighteen hours found her laying, and the bees working away not ten yards from their old home, as if they had been there all their lives. All our first experiments were with virgin queens, all of which we found laying at the end of the week. In December last I wrote to D. Stroud, of South Africa, about the South-African bees, and asked him for a list of his prices. We did not take the *British Bee Journal*, nor know of any one who did; but, strange to say,

we have had no reply from him. As we are only 21 days post from the Cape, there has been plenty of time. Again, last month I wrote, sending him two black queens in a Benton mailing-cage, as an experiment, to see whether they would reach him alive, and to show him the kind of cage now in use. From his communication to you he did not appear to know very much about some of the late inventions. We have lately been considering whether the Italian bee is really best suited to our part of the world; here our principal honey crop (from the eucalypte) comes to us in the autumn, and, except in the orchard or clover districts, the bees scarcely do much more than make a good living in the spring and summer. In an old number of *GLEANINGS* which was sent to me, I noticed that exception was taken to some race of bees because they spent their spring months in brood-rearing, instead of honey-gathering. Now, it seems to me that this is just the bee we want, so as to have our colonies strong, and in full working order by the autumn; but I have forgotten which particular race of bees it was. Will you give this matter your best consideration, my dear Mr. Root? bearing in mind that our climate is, as a general thing, a very dry one, and that we are not obliged to winter our bees, and let us know which you think would be the best race of bees for us. T. F. BRADLEY.

Campbelltown, N. S. W., Aus., Apr. 18, 1887.

The bees which you probably have in mind are the Holy-Land bees. They will satisfy you in the amount of brood. As to where they may be found, see our advertising columns. It is pretty hard to say which would be the best bees for your locality. As a general rule you will not find a better race than Italians.

FOUL BROOD, TO CURE.

Your favor of the 18th inst. is at hand, also the A B C of Bee Culture. I am satisfied your method of treatment of foul brood, as so admirably detailed in your very recent issue of the A B C, would be eminently satisfactory where this dreadful disease is in its incipient stages, and when its presence is the result of bees having access to honey from colonies so affected. The conditions of my colonies, and the sources whence it comes, are such as to render any thing but the most persistent, thorough, and heroic treatment worse than useless. The development is rapid, and of a most positive and unmistakable character.

Now, here is our method: Cage all the queens for, say, 20 days, to stop brood-rearing. Confine the bees in cages from 24 to 48 hours until their honey-sacks are exhausted. Boil thoroughly and repaint the hives. Beeswax all the combs, and destroy frames. Move the bees $\frac{3}{4}$ miles in the country, and put on new frames and full foundation. Now, friend Root, do you think this would eradicate the disease? The destruction of the hive involves too much expense, if we can possibly avoid it. The work of renovating will commence as soon as basswood flow ceases.

Eureka, Ill., June 21, 1887.

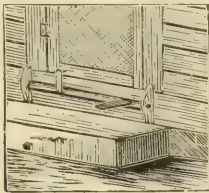
S. W. LAKIN.

The plan which you propose for curing foul brood, I think will work all right. While there would be considerable advantage, perhaps, in caging queens for a period of 20 days to prevent brood-rearing, yet our experience has repeatedly shown that the starvation plan (that is, burning the brood-combs, and placing the affected bees and

queens in clean hives on frames of fdn., and boiling or steaming old hives) is entirely successful so far as the colony treated is itself concerned. Your suggestion in regard to taking bees, as fast as treated, to an entirely new location, is good; and where you can do this without much expense, I would advise you to do it. You will then have all the colonies treated, away from the baneful influences of bees intermingling, and carrying honey from infected colonies into the newly formed swarms.

ANOTHER DEVICE FOR OPENING SCREEN-DOORS.

You ask in GLEANINGS, May 15, for some improvement or simpler arrangement of J. A. Green's screen-door opener. Well, here is mine. Make a roller a little longer than the width of the door; fasten it just under the door with two brackets, at the end near the door-binges; fasten to the roller an arm projecting up. An end of an old steel wagon-spring is good. At the other end, and clear from the door, have another arm raised a little above a level, then by pressing this last arm down it will turn the roller, and the other arm will open the door; thus:



FRADENBURG'S PLAN FOR OPENING SCREEN-DOORS.

I use no cord, no pulleys; nothing unsightly; it can be so balanced that it will not hinder the door from closing.

A. A. FRADENBURG.

Port Washington, O., May 23, 1887.

FATHER LANGSTROTH, AND WHAT A NEIGHBOR SAYS OF HIM.

In GLEANINGS of June 15, C. F. Uhl makes this inquiry. "Was there ever any patent on the Langstroth hive? If so, who was the patentee?" Now, for the information of friend Uhl and others, I will state that the Rev. L. L. Langstroth received letters-patent on his movable-comb hive, Oct. 5, 1852. Reissued May 26, 1863, and I think a further extension afterward; and as to his being a fraud and swindler, nothing could be further from the truth. After almost 30 years' acquaintance with him (I can fully indorse all you say of him) I have always found him to be an honorable and truly Christian gentleman; in fact, one of "the salt of the earth;" and though it has been his lot to be sorely afflicted, the reason *why* we can not tell; but, "Shall not the Judge of all the earth do right?"

Oxford, O., June 27, 1887.

J. COULTER, SR.

WHY DO MY BEES SWARM OUT AGAIN?

Myself and neighbors have been troubled a great deal with bees leaving the hive after having been hived for from three to ten days, and having brood well started, and no visible reason for their doing so. Thinking that perhaps others had been troubled in the same way, your advice might be of interest. I have tried both chaff and Simplicity hives, with and without brood given them when hived,

and single and double swarms, and there is no apparent difference, and they frequently come out two or three times, but always cluster and finally accept the hive and stay. They invariably have brood if they stay long enough to start it.

M. E. KIMSEY.

Salem Center, Ind., June 24, 1887.

Friend K., your experience is very unusual indeed; in fact, we have always laid it down as a rule, that bees never swarm out after they have commenced brood-rearing. I think it is a sort of mania that they have gotten into, and that you will not be troubled with it very long. Bees sometimes get into such ways of doing, and the whole apiary seems to be for a time infected with this kind of behavior.

WHEN TO CUT ALSIKE FOR SEED; DOOLITTLE QUEEN-CELL PROTECTOR.

As alsike clover is gaining rapidly in favor with farmers as a hay and pasture crop, especially on suitable soils, and is also one of the best honey-plants, perhaps the experience of one of our most successful growers here will be of use to many. He is the one who harvested the 12-acre crop last year. His name is H. E. Wilson. He has raised alsike for many years. He sows only two quarts per acre, and prefers sowing in the fall, drilling it in with wheat. He harvests the seed crop when in the best condition for hay, when the stalk, leaves, and some of the last blossoms are yet green. He says he gets more seed than when riper, besides a good crop of hay. His 12 acres yielded almost 6 bushels to the acre. He sold the big load for \$6.25 per bushel; the rest at retail for \$7.00. Mr. Conrad Atwell and A. D. Macham, of this place, will harvest seed, and probably many others. Mr. Macham has pastured his this spring, in order to delay the harvest, as it generally comes in the midst of the wheat harvest. His crop looks promising now.

THE DOOLITTLE QUEEN-CELL PROTECTOR A SUCCESS.

I made a queen-cell-protector mold according to your directions. My block is three inches thick. I cut a shoulder on all four sides of the block $\frac{1}{2}$ inch down, leaving the face of the block just the size of the piece of wire cloth for the protector, which helps to place the piece on evenly and quickly over the mold. I have used the protector for 12 queen-cells, and have failed with only one, and that looked as though it was destroyed by a worm. I make the hole in the point not very large, and see that the point of the queen-cell fills the hole. The queen-cell protector is a great help to me, as I am dividing many colonies of bees.

H. S. HOXIE.

Holloway, Mich., June 24, 1887.

THE BEE-ROCK.

The bees, up to the present date, have gathered but little honey, and have made no surplus whatever. They have plenty for brood-rearing, but have never swarmed any. The imported queen I bought of you last July has been very prolific this season. I have raised a great many queens from her. I see in the last number of GLEANINGS a sketch of what is called the "Bee Rock" in Tenn. I have often heard of that rock, and should like to hear further reports from it.

Webbville, Ky., June 24, 1887.

L. J. WEBB.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: *Sheer Off, Silver Keys, The Giant-Killer*; or, *The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room*. We have also *Our Homes, Part I, and Our Homes, Part II*. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Cuddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

GETTING READY FOR A BOOM IN BEE-SUPPLIES; THE HUMAN HAND.

ACCORDING to the advice of Mr. Green, the boys decided to postpone indefinitely their taking revenge on Jake. As honey would be soon coming in, he advised them to get every thing in readiness. The saw-mandrel and saws which they had sent for had arrived. The next thing to be accomplished was to construct a suitable saw-table; and as it requires considerable mechanical skill to make a good strong table, Mr. Green thought best to help the boys, as he had done on the windmill. He accordingly selected some pieces of hard wood at the planing-mill, and had it dressed out in shape to be put together. The two boys, with Mr. Green's assistance, soon had a good strong and rigid saw-table. This they located in the barn-loft, in position to be easily connected with the windmill. When at last every thing was in running order, as luck would have it, or, rather, "bad luck," as the boys were pleased to call it, there was not a breath of wind. They waited two or three days, and still no wind. On the fourth day there was a very little breeze, but hardly sufficient to keep the windmill in motion, even without the saw-table and connections.

By this time honey was beginning to come in. Mr. Green was needing some hives, frames, and supers. The boys had no lumber, and no capital to start with in the supply-business, and, worse than all, no wind; but Mr. G. readily consented to furnish them the lumber, and pay them a certain amount for manufacturing it into hives, supers, frames, etc. As to the wind, he enjoined upon them patience. He accordingly purchased at the planing-mill some selected white-pine lumber, planed on both sides, some of it $\frac{1}{2}$ inches thick for hives, and some $\frac{1}{4}$ inch for supers. After the lumber was

piled and sticked up in the barn-loft, the boys waited again for the wind. They could hardly wait, for there was nothing else that could supply them the requisite power. As it was hot summer weather there were only light breezes, and these were not sufficient to do them any good. Mr. Green told them they would have to wait until a thunder-shower should come up, and take advantage of the wind which might accompany or follow it. In the meantime, he gave the boys a little lecture on being careful with buzz-saws. Said he, "boys, you will never begin to realize the value of your fingers until you have lost one. No invention of man, however ingenious, has ever yet supplied us with what God has given us."

"Suppose, boys, that a man were to forget all about the use of hands, and should suddenly find himself without any. Let us then imagine that he has the power to have made on the ends of his arms any thing he pleases, for the purpose of doing the work of the world. The tool, if we may so call it, must be able to hold a hammer, pick up a grain of sand, play on the piano, hold a pen, repair a watch, open a hive, and, in short, do the entire work of the world. What do you suppose, boys, the hand would look like? How would you have such a hand made?"

The boys realized at once that such a problem could be solved only by an infinite mind, and they were silent. Jimmie looked at his hand, and seemed to see in it something more than blind chance.

"A human invention for the purpose of taking the place of the hand," continued Mr. Green, "would probably consist of a great deal of machinery; and even after the hand were done it would doubtless prove an entire failure; but God uses only four fingers, one thumb, five nails, nineteen bones, skin, and muscles; and yet in the human hand, our wisest men tell us, we have the highest exhibition of God's wisdom of any thing in the physical world."

"I never thought so before," said Sam; "but I believe that is all true—every word of it—for I find my hand is *just the thing* for all my work."

"A buzz-saw" continued Mr. Green, "does not seem to recognize the difference between a common board and your precious fingers. In fact, it seems to take special delight in mutilating and tearing to pieces some of the most wonderful pieces of work that God has ever made. You may think your little buzz-saw will not do a very great amount of damage; but a friend of mine who was running just a hand-power buzz-saw had his hand so mutilated on this same saw that he had to have it amputated. Now, boys, remember to be careful. Don't ever let your fingers get near a running saw. There is no need of it, and it is a terrible risk to run. To avoid any possible accident, I must insist on your using what sawyers call 'push-sticks.' They look like the little wooden pistols that the boys hold fire-crackers in. On the under side, at the muzzle end, a notch is cut, about half an inch square. The object of the notch is to catch hold of the lumber more easily and safely."

"Now, boys," said he, "in shoving lum-

ber through the saw, grasp hold of the handle of your wooden pistol. Should the saw strike the push-stick, it will do no harm. If you are handling small pieces, drive a wire nail just back of the notch, so as to project through. This nail will stick into lumber, and draw the pieces back so you can take off another slice. I omitted to say," he continued, "that the pistol needs to be made of seven-eighths pine, and the handle should be whittled and sandpapered so that no sharp corners project, otherwise your right hand will become blistered and sore." Mr. Green then left them to make their push-sticks.

The boys waited three or four more days, and anxiously watched Mr. Green's barometer, to see whether the mercury were falling. Mr. Green had told them, that when the mercury drops quite perceptibly in a short time, it indicates one of two things—either wind or rain, and probably both. If ever that mercurial column was watched by two pairs of eager eyes it was during the time that our two young mechanics were waiting for wind. The boys watched until it seemed as if there never was such a summer as that before. They argued, "If we don't get some rain pretty soon, the farms will all dry up, and there won't be any honey, and then, of course, nobody will want to buy hives of us." They felt almost inclined to complain again at the Creator of all things because he had not made a wind just when two little boys wanted to have him do so.

One evening, just before the boys separated to go to their respective homes, they noticed that the barometer indicated a storm. Mr. Green said that it might amount to something. The boys went to bed with expectant hearts. Along in the night, Sam heard his window-shutters rattle. He hastily put on his clothes, got his lantern, and started for the barn. On the way thither he was overtaken by Jimmie and his lantern. As they clambered up into the barn-loft, they said, "Now we will see if we can't make some hives; for if we don't take advantage of this wind we shall not be able to make any hives at all." "Hark! hear the big drops of rain patter on the roof."

Continued Aug. 15.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

HOLLYHOCK AS A HONEY-PLANT.

The bees are gathering a lot of honey now. They make most of the honey from sumac and cotton-bloom. The bees are making honey from buck-wheat too. How do you think hollyhock would do as a honey-plant? Bees get quite a lot of honey from it when in bloom. ELIZA MARTIN, age 11.

Hackett City, Ark., June 24, 1887.

Although the hollyhock has not been tested on a large scale, yet we are of the opinion that it would not amount to much as a honey-plant. We occasionally see a few bees hovering around the blossoms, but it seems to be the pollen they are after, rather than

the nectar. Are you sure that your bees gathered honey to any extent from hollyhock?

JOHN'S POETRY.

I saw in GLEANINGS several pieces of poetry about bees, so I have written one.

I have a busy little swarm
That works from morn till night,
And makes a person jump and scream
When they begin to bite.

Hlderton, Ont., Can.

JOHN G. KENDALL.

HERMAN'S LETTER.

Mypa's bees did not do well last season. It was too dry. Pa has an A B C book, and takes GLEANINGS. He likes it very much, especially the Home talks. I am in a hurry to know how Sam and Jim are getting along with their windmill.

HERMAN BLAIR, age 11.

Lockhart's, W. Va., Apr. 20, 1887.

HORSES STUNG.

Pa got ready to go to town last fall, and the team was left a few minutes, when the horses got started and upset the bee-hive. The bees came out and stung the horses. Papa ran out and ran them back up the hill to get the bees off. Two neighbors happened to be passing, and helped to get the bees off.

ROSA NAYLOR, age 14.

Lockhart, Jackson Co., W. Va., Apr. 5, 1887.

GLEANINGS AN OLD FRIEND.

Pa has 36 swarms, 10 new and 26 old ones. Pa told my brother and me if we would hive the bees when he was away he would give me twenty cents and my brother five cents. He went away, but no bees swarmed. We like GLEANINGS very much. Pa had not taken it in a long while; but when we took it again it seemed like one of the family.

Flint, Mich.

FANNY BOSTON.

A SWARM OF BUMBLE-BEES.

Pa packs his bees with chaff and straw on summer stands. He makes his hives of rustic work, with a shingle roof, and paints them red, white, and blue. While clearing land my brother Howard and I found 4 bumble-bee nests. We hived them all in a tin can, and got three queens. The fourth flew away. One of the queens killed the other two. They are doing well, considering there were but a few. I was stung on the finger while we were hiving them.

GEORGE C. ALLEN, age 11.

Snobomish, W. T.

CHILLED BEES.

Papa's bees made lots of honey last summer. The most of it was nice and white, and it was in one-pound sections. Papa traded some for butter, pound for pound. He sells the white for 12½ cts., and dark for 10 cts., in the neighborhood. Papa lost three stands of bees last winter, and mamma lost one. Some bees came out late one evening in the spring, and alighted on the peach-tree stump. We did not see them until the next morning. They looked as if they were dead. We brought them in to the fire, and brother Wesley put them in a five-pound cap with comb and honey, and they soon came to life, and they are the strongest hive on the place. Last summer they swarmed once, and filled 72 sections with honey, and had in the hive enough to keep them through the winter.

DAISY WHITE.

Broad Run Sta., Va.

HONEY-CAKES, PULLING OUT STINGS, ETC.

Father had 13 stands of bees last fall, and has only ten now. They are doing nicely. Mother makes honey-cakes. One of the recipes that father likes best is as follows: 1 cup of honey; 1 of sugar; 1 of butter; some milk; $2\frac{1}{2}$ lbs. of flour; scant $\frac{1}{2}$ cup of shortening; 1 egg; 1 large teaspoonful of saleratus; cinnamon and cloves, 1 teaspoonful of each. Bake slowly in two long shallow tins.

I have read, "Never pull a sting out, because when you get hold of it with your fingers you jam all the poison into your flesh; but squeeze it out and then you squeeze the poison out with it." I see king-birds have been written about twice in GLEANINGS. I will tell what I know about them. It was in the honey season that we noticed them. They would sit up on a high limb, frequently take a circle, and alight again with a poor little bee. Father got provoked and shot them and opened one. The bird did not have any bees in its crop, or, rather, we could not find any crop, but the gizzard was full of bees. My uncle, Albert Peck, living at Wheatfield, Mich., winters his bees successfully in the depot, therefore the noise, of course, does not affect them as some claim.

IVA A. PECK, age 14.

Jackson, Mich.

SECTIONS FOLDED AT THE RATE OF 1200 PER HOUR.

My brother Perl and I each put one-piece sections together at the rate of 1200 in one hour. We did not put that many together, but put up 20 in one minute, which is at that rate. We put them together Monday before noon, ready for use. It is pleasant work for us, and it might be we could do better. They were the sections which Fred got of you. Fred's bees have not swarmed this year, but are lying out considerably, and making lots of honey.

NETTIE H. CRANSTON.

Woodstock, Ohio.

Thank you, friend Nettie. Why, we feel as if we were acquainted with all the Cranston children. On p. 476 we offered to give any of the juveniles any thing they might choose from the ten-cent counter, providing they could beat the record of Alfred Higbee, who folded sections at the rate of $6\frac{2}{3}$ per minute. But here you have gone so far as to fold 20 in one minute—considerably more than $6\frac{2}{3}$ per minute, is it not? When I first read the statement, that you could fold at the rate of 1200 per hour, I thought it sounded something like a "fish-story." I accordingly took your letter to the lady who has charge of our sample-room; and when I told her there was a little girl down in Campaign Co., O., who could fold sections at the rate of 1200 an hour, she said flatly that it was impossible, and I almost felt inclined to think she was right. About the best record we had made in our sample-room was 750 an hour, and that was by one of the girls who had become quite expert. As we have some girls here who can fold as many sections as anybody ever did, I requested the one whom I thought could make the best record to keep count and see how many she could fold in one minute. To my surprise she folded 20 the first minute and 21 the second minute; but I tell you, she had no time for false motions. So we are obliged to admit, friend

Nettie, that the rate of 20 per minute is entirely possible; and if the sections were all piled on one side, and every thing in readiness, the 1200 for a whole hour *might* be made, providing the little girl or boy did not get tired out. Well, friend Nettie, as you have fulfilled the conditions we made on p. 476, please let us know what you choose from the ten-cent counter, and we will mail it to you.

OUR FRIEND L. C. ROOT; HIS OLD HOME, AS REPORTED BY A LITTLE GIRL.

This spring papa bought Mr. L. C. Root's place, half a mile from Mohawk, New York. We left Mickleton, New Jersey, on the 26th of March. The farmers there were planting potatoes. Arriving at Mohawk we were told there were six feet of snow in the woods, and we found good sleighing. All our goods were brought over from the station on sleds. It was some time before we saw a vehicle on wheels—every thing was on runners. We like our new home very much. Mr. Root had things fixed up very nicely, especially for bee-keeping. His cellars for wintering bees are complete. He and others had about 200 hives in the cellar last winter. We children were very much interested in seeing them take the bees out and work among them. Mr. Root did not wear any veil. The bees seemed to know when he came around. They never thought of stinging him, but they did the other men.

Mr. Root was here a week, getting his bees ready to ship. We became quite well acquainted with him, and found him to be a very fine man. We like him very much. We think Mr. Root must be sorry to leave his home here, as it is very cozy and comfortable. Papa has 60 hives of bees, 30 of which are in Simplicity hives. He bought 30 of Mr. Root. Mr. R. uses the Quinby hive. Papa's bees are doing well. They have been gathering honey from fruit-bloom. They are building up nicely. Young bees were flying to-day. He has a nice bee-yard to keep them in. In our old home, papa always wintered them on their summer stands. I think there was not a month during the winter but there was a day warm enough for bees to have a fly.

I am the elder daughter. I have one sister and two brothers. I am 11 years old. We go to church and Sunday-school. Two years ago I went to Sunday-school every Sunday in the year. My sister missed only one Sunday, being sick. We lived one mile from the church. Papa thinks you and Ernest write much alike. Oftentimes in reading an article he can not tell which of you wrote it till he sees the name.

HOPE L. HAINES.

Mohawk, N. Y., May 27, 1887.

A great many thanks, Hope. Your report of our old friend L. C. Root and his home is real good; and we believe there are many others who will bear you out in all the kind words you have said of Mr. Root. While a veteran reporter might have said a great many things in regard to Mr. Root's former home and surroundings which you have left out, yet when we want to get at little details—something that we all want to know—we must confess that the little folks carry off the palm. Your letter will be read with interest, and we think it deserving of a nice panel chromo, so we send you one.

OUR HOMES.

Ye are not your own, for ye are bought with a price.—I. COR. 6:19, 20.

BRO. ROOT:—I have long wanted an opportunity to say a few words to you, and now I have it. You have opened the way in *Our Homes*, p. 479. I have admired your zeal for years, but lamented that it lacked knowledge; i. e., the knowledge that you were cleansed from all unrighteousness. The work which Christ came to do is but half done in your case, for want of consecration and faith. You confessed your sins, and he pardoned you—yea, a thousand times and more, and now in this talk (*Our Homes*) you have confessed your unrighteousness, uncleanness, and depravity; now believe that he cleanses you from all unrighteousness. You received your pardon by faith, now receive your cleansing by faith, and hold it by faith—a continuous faith—no matter what the devil says about it. He is a liar. The blood of Jesus Christ his Son cleanseth us (continuously) from all sin (that is, the justified believer, who by faith applies it). Receive ye the Holy Ghost. He will satisfy your longings, and lead you into all truth and greater usefulness. You have made a fearful disclosure of your state (and yet I knew it all), for it is the state of carnality which can not be subjected to God; but it can be cleansed out by the blood of Christ. I know it!

Thank you, dear brother, for your kind admonition. No doubt you are in the main right; but, if you will excuse me, I am led to believe that we are not only unlike in our tastes and dispositions, but that we are, in many respects, in our religious experiences also. Furthermore, I am led to believe that God has different lines of work for each one of us to do. Perhaps he calls in different directions and in different ways. I know I have many temptations and many conflicts with Satan, and sometimes I have wondered whether it was because of my transgressions, or because God wished to take me through particular experiences, that I might be the means of leading others through like trials. May be both are true.

At one of our prayer-meetings, some years ago, I mentioned the fact that I had sometimes thought it strange that I should be so continually tempted and tried. After meeting, a good brother who was, by the way, a minister, suggested that it was not altogether improbable that it was well for me that I was tried in these different ways. Said he, "You have much in your life that might make you proud and overbearing. If the world saw no weakness in you, and you were aware of it, you might get to holding your head higher than you do now. Is it not possible there is a providence in this fact? and may not these things contribute to keep you humble? As it is, you constantly *feel* your need of Christ's pardoning power."

Since my last Home Paper there have been several letters similar to the one I have given above, and there seems to be some curiosity, and perhaps anxiety, to know in just what ways I have been tried. I have felt moved to give you one little incident as an illustration.

I have several times mentioned what I call my "Swamp Garden," within a quarter of a mile of our factory. Almost on the summit of a hill, there has been, since the recollection of the oldest inhabitant, a sort of bog, pond, or morass, inhabited by frogs, turtles, and snakes, and grown up with bushes and rank weeds. Even in the driest summer weather, water has stood there most of the time; and depths of vegetable mold, decayed leaves, moss, etc., extend downward many feet. During the winter the bushes were all cleared off, and the swamp nicely drained; and some time in May we were getting it ready for celery-plants. I was enjoying myself wonderfully in helping to get out the roots, logs, and various trash; and before I knew it I was dripping with perspiration. My underclothing had been all laid aside a few days because it was so near summer time. While at work I noticed a delightful breeze springing up from the northeast; but it seemed so delicious I paid but little attention to it, more than to thank God for that wonderfully bracing gift of cool fresh air, and for the breeze that sprang up in the forenoon to refresh the outdoor laborer. My friend, did you ever taste such a breeze when working in the cornfield, or when otherwise occupied in the open air? Pretty soon, however, the breeze became fresher and cooler, and I began to feel a kind of chill through my thin cotton shirt, the only covering for my arms and chest. I put on my vest, but I was chilly still; and as my coat was at the house, I thought I could not take any harm, as the sun shone so very warm. By and by, however, I began to think best to start for home and get a coat. I was chilly when I got it; but I reasoned that a warm coat, all wool, worn during such a hot summer day, would certainly fetch up the temperature soon; but as soon as I got home I was called to attend a funeral, and was assigned a place in an open doorway. I had by this time begun to dread that northeast breeze, and to wish it would not blow; but under the circumstances, and as the room was crowded, I decided to keep my place in the open doorway, rather than make any disturbance, even though I felt uncomfortably chilly all through the services. At dinner time I was given a place again near an open doorway, and I thought best to keep it, rather than to incur the confusion of changing places, when everybody was tired and hungry. After dinner I found I could not stand as much of a breeze from the open windows as many of the girls in the office, who often feel like complaining because I want the room so thoroughly ventilated during working hours. Just now, however, I begged to have the windows put down a little while. By this time it seemed as if nothing could warm me up, so I went home and got some hot lemonade, put on my overcoat, and afterward my winter fur cap. The temperature of my system, however, seemed to have got into a sort of falling way, and I kept getting colder and colder. By night time I was ready to be blanketed in bed, as friend Terry directed a few months ago. The blankets didn't seem to do much good, however. My teeth

chattered as if I had the ague, and a gathering in my head told me the old earache of my boyhood was coming, unless I had a hot brick under it. The Bath bricks used for warming feet nowadays are just the thing, and my good wife soon had one under my head, so hot it almost scorched the bed-clothing. I got warm, and into a sweat; but racking pains were darting through me all over, and I was a good candidate for lung fever, or something of that sort. The doctors can probably tell what the matter was. Some of you may be surprised that a man nearly fifty years of age should not have known better than to expose himself in the way I did. I did know better; but it had been some time since I had had a lesson like the above, and I was getting careless. I suppose that most of you have heard of lives being lost under similar circumstances. When you get heated up, and in a heavy perspiration, don't sit down in a draft to cool off. Take warning from the experience of Uncle Amos.

We are now ready for the spiritual teachings that came to me in consequence of the above imprudence. It has been many long years since I passed through the suffering I did that night. Sleep seemed to be impossible; and yet when my wife asked what was the matter, and where I was suffering, I could not really tell. Over and over again during the night I would sit up in bed and wonder whether I was made of *old boards*, *warped* and *checked* and *split*, or whether I was really flesh and blood, in my own home. The chill, or whatever it was, had left me light-headed; and even when I sat up I did not seem to know what I was or where I was. I simply knew that I was suffering in every part of my body, in a way I had hardly ever suffered before; and in this phase of bodily pain, Satan seemed to think:

"I wonder, now, if this will not be a good time to offer some suggestions to that pious chap. I have tried him with almost every thing, and he has snubbed me and misused me so much I should like to humiliate him a little."

I didn't think at the time that it was Satan; but afterward, as I pondered over it, I felt sure enough. Now, you may be a little curious, dear reader, to know how Satan could torment a body while sick and suffering. Well, Satan did come to me in a new phase. He came to me with an experience I had never had before. I suppose most of you know that my disposition is naturally hopeful. When even a small boy I was noted for being happy, cheerful, and contented most of the time. It didn't require companions and playmates or playthings to make me happy, either. The things of interest to be found in our dooryard, or, in the winter time, even indoors, were enough to furnish me with a vast fund of enjoyment. In fact, life, under all circumstances, has been a rare gift. I love to live. People have sometimes asked the question, "Does it pay?" I have always said, "To be sure, it pays, a hundred times over." When I have heard people talk about death being welcome, it has always seemed strange to me. This life may be painful, it may be

unpleasant; we may have many great trials; but I have always felt, that life is to be preferred under any conditions, to non-existence. I think I have said, sometimes, while discussing this matter, that I would unhesitatingly take the penitentiary for life, even if while there I should be deprived of hands and feet, sight, hearing, and, in short, every thing else it is possible to take away and still leave existence. My wife used to suggest killing a lame chicken, to "put it out of its misery;" but I always replied, "Why, my dear wife, how do you know that it is out of its misery when it is killed?" She always insisted, however, that everybody knows that a dead chicken does not suffer; but the latter has never been really clear to me. The chicken had tasted the pleasures of existence; and I was never satisfied that it would be happier dead than alive, even with a painful leg.

Perhaps, dear friends, you think there is no point here, and that this is aside from our text and from the letter from our friend. The point is this: For the first time in my life—at least, so far as I can remember—Satan suggested slipping off this rickety, pain-racked frame, and with it this sin-stained life of trial and suffering. Now, do not be in haste to jump at the conclusion that I permitted the terrible thought of suicide to once enter my mind. I did not, any more than so far as I am going to tell you. When Satan whispered that this life is but a series of trials and hardships any way, the old thought about the dead chicken came into my mind, and I began to feel like assenting to my wife's philosophy. Since becoming a Christian I have not dreaded death, because with it has come the thought that it would come when the Savior called; and I am sure it will be a glad moment for me when I can feel absolutely certain that he calls me anywhere—whether to *life* or to *death*. But that night a feeling came that I was getting old, and that it would be rather a relief to give up care and worry and pain, and take rest. Satan did not say any thing about what *sort* of rest it was to be; but to my feverish brain that night the idea seemed inviting. Then my mind recurred to the boy I found with his neck across the railroad track; and I thought of his philosophy, that in this way he could keep his promise to his mother, never to drink any thing more, and it seemed quite reasonable. Then I remembered those I had known, others I had heard of, who decided they would not stand suffering and torture any longer, and accordingly took upon themselves the terrible responsibility of ending life. Dear reader, have you ever had any experience of the rapidity and speed with which Satan can push ahead whenever he succeeds in getting a listener? Some of you may ask, "Why, brother Root, where was that little prayer of yours, that has all along these years rung out involuntarily—"Lord, help"? Well, it did ring out; may be there were only a few *brief minutes* before it sounded; but in those few brief moments I was made to feel that dangers awaited my frail bark of life that I had never dreamed of before. I was made to feel that new and un-

heard-of temptations and trials were probably yet in store for me. Right close after the prayer uttered, "Lord, help!" came Scripture texts, many of them, to comfort me. It seemed as if ministering angels were near—as if they had been all the time waiting with bated breath until bidden to approach and offer comfort; and one of the brightest and most precious of these texts was the one at the head of this paper—"Ye are not your own, ye are bought with a price." May God be praised for the consciousness that this is really so.

We are in the habit of thinking that we can do what we please with that which is our own. If you want to tear your own house down, you can do so; but you can not tear down your neighbor's house. You can, under certain restrictions, destroy property, if you choose; but you can not destroy your neighbor's property. Well, my friends, is it not true, that a great part of the world seem to be laboring under the delusion that they can do any thing they choose with these bodies—these temples of the Holy Ghost? But, hold on a minute, dear brother. The text says, "Ye are not your own, ye are bought with a price." You may say this text is for the benefit of Christians; that those who have no faith in God or the Bible, and who see things differently, may decide that they can do what they please with their own bodies; but, my friend, I believe that good common sense will decide here as elsewhere, that the Bible teachings are true, whether you have faith in God and the Bible or not. No one, since the world began, has ever had the right for a single moment to put himself out of existence. God gave life, and it is God alone who has the right to take it away. Probably none of us have any comprehension of the depths of suffering that a human being may be called upon to bear; but whatever comes, there is no question but that it is our duty to bear it. Of course, we are privileged to do every thing in the power of science or medicine to alleviate this pain; but when we fail we must bear it, and try to bear it patiently.

You know how strongly I have taught faith in prayer, all along these years. You know how earnestly I have enjoined every suffering son of Adam to go to the Savior when in trouble. Now, then: When we are suffering excruciating pain from sickness, toothache, earache, rheumatism, neuralgia, or all these things, does God hear, and does he care? To be sure, he does both. He may not think it best, however, to spare us these trials. I have been trying to tell you of a way in which he has not spared my poor self. I have not suffered very much bodily pain, it is true; but I have been pestered and tormented by the Prince of darkness more or less ever since I started out to be a Christian.

I have many times received much comfort in reading the experiences of the veteran Paul. You remember that thorn in the flesh. Paul wanted it taken away, but God decided differently. He told Paul, however, that his grace was sufficient, and it seems as if he had told me this many times. Well, during the night in question my suffering

was at a time—that is, so it seemed to my poor weak self—almost more than I could bear. I think it quite probable, however, that it did not compare with much that my kind and sympathizing wife has been called upon to suffer in many ways. Be that as it may, it was to *me* about all I could stand; and when these texts came thronging to my memory I begged piteously that God would have compassion on his poor weak child, and give him a respite, if consistent with his holy will. Now please, dear friends, believe that I am trying to give you plain and simple facts, without exaggeration or coloring, when I am telling you the experiences of this brief hour. I remember this vividly—the answer to my prayer came. I believe, almost instantly. The phantoms of my feverish brain seemed to vanish. I was *comparatively* free from pain, I was myself once more, and happy—yes, very happy, after the pain and the conflict. I stopped counting the tickings of the clock, and the hours as they struck, and slept peacefully, for I was at peace with my Maker.

You may notice in the above, that there is an intimation that I was out of my head a part of the time, as a result of the fever. Suppose a person should commit suicide under similar circumstances, when he did not know what he was doing, and do not such things often occur? My friend, it is my opinion, after what I have heard and read, and the experiences I have been through, that Satan is more or less in league with what we call insanity. I don't want to judge harshly, and I don't want to be uncharitable; but I do feel satisfied of this: That no insanity will ever be the cause of *my* committing any such terrible crime.

One of Satan's suggestions at the time I have been mentioning, was like this: "Suppose you were doomed to suffer thus, not only one night, but weeks, months, or years. You know many people do suffer in this way, and good Christian people too; would you bear it without a murmur?" Now, dear friends, I did not answer back that I would not bear it; but the pain and the delirium goaded me so that I felt very much inclined to say mentally, that I would not bear such pain, or worse pain, months or years, for anybody or any thing. I don't think I formed any idea in my mind just what I would do to get rid of bearing it, but there was a stubbornness and obstinacy in my heart that ought not to be in the heart of a Christian—no, not even when he is sick. Job's wife suggested to him that he should curse God and die. Job, however, was man enough to tell her she spoke as one of the foolish women. "Have we received good at the hand of God, and shall we not receive evil?" And the Bible says, that in all this Job did not sin with his lips. Perhaps he sinned inwardly, something as I did; but I believe, my friends, a human being under torture does pretty well when he keeps perfect command and control of the words that pass his lips. Satan commenced again: "You are partly crazy now. Is it not quite probable that you might be so delirious with fever as not to be aware of what you are doing? In that case, even God

himself could have nothing laid up against you.

This kind of logic sounds foolish in the clear light of day; but to my tortured and feverish imagination that night there seemed to be a sort of taking suggestion in such philosophy. I think I have now confessed the entire extent of how far I listened to these suggestions, and I am going to try to make his suggestions profitable by turning his words against him. I suppose you have found it to be true, that your dreams at night partake largely of the events and of your thoughts of the day. If you permit evil thoughts to find a lodging-place in your heart, evil dreams will follow. Well, I feel quite sure that insanity is something in the same line. We all know that insanity is often caused outright by sinfulness. Giving way to temper itself may make a man insane. Then many of us, at least, are partly if not wholly to blame for becoming insane. Furthermore, we are partly or wholly to blame for our conduct, or for things that happen while we are insane. If the truth could be known, I feel satisfied that a large part of the suicides that occur under the influence of insanity are the consequence of sin in some form before the insanity comes.

Perfect obedience and perfect allegiance to God and his laws are certainly a great safeguard against these evils. One whose whole attitude of thought and action is, "Not my will, but thine, be done," is not likely to be insane; and one whose whole life is thoroughly imbued with the thought of our text, it seems to me, would be hardly likely to commit suicide, even if he were out of his head through the effects of fever or other sickness. I have before mentioned facts that indicate that thoughts of self-murder grow little by little in the human heart, and I have been wondering whether there is any thing in my life during the past few years that had been encouraging a place for such thoughts in my own heart. I have all my life been nervous, impatient, and full of anxiety. When property accumulated on my hands I discovered that this must not be, or I should break down under it. With God's help I have been climbing above these human weaknesses. Going to sleep before our warehouse had stopped burning, was an illustration. Well, now, there is such a thing as slipping over into wrong, even in this direction. I do not mean in the way of trusting God, but in the way of indifference. Suppose some of the boys should run in and announce, "Mr. Root, your horses have run away, and they are smashing every thing to pieces." Now, it would be out of place to jump up and run and induce the men all over the establishment to stop their work, and run and make a great ado, when they could not do a particle of good. In view of this it might be well for me to tell the boy to go back to his work, and that the men in charge of the team would take care of the horses. Should I, however, omit to go very soon and look after things, I should be sinning by indifference where I had no right to be indifferent. I do not know but that I have been in danger of going too far in saying, when people are sick, "Just let them

alone and they will get well as quick, or quicker, than if you fuss with doctors and drugs and herbs."

Just a word in regard to my severe cold. The next morning I was a good deal sadder, if not very much wiser. Toward noon I got around to look after things, with a good warm undershirt and my overcoat and fur cap on. I felt pretty sick until I began to perspire freely out in the sun, then I began to feel tolerably like myself. For two days I perspired until all the clothing next to my body was dripping wet. The disease was broken. I did not have a cough, nor even a cold in my head, nor on my lungs. I followed Terry's plan, but I did not lie in bed. In the evening it was very necessary that I should be present at a meeting of the school-board. I went bundled up; but in spite of my heavy winter clothing, toward the close of our deliberations I began to get chilly. My son-in-law, fearing I might suffer by being out so late, had Meg and the buggy at the foot of the stairs; and just as soon as I came out he whirled me rapidly homeward. When I got there, however, the chill had come back. I ran into the house, and called my wife to pull down the big blankets again, and she covered me up, overcoat, fur cap, and all. But the gasoline-stove had to be lighted, and the soapstone made hot again before I could check the chill. Now, I didn't take any medicine whatever — not even catnip tea; and yet I doubt if many recover with the aid of a physician any quicker than I did. A few years ago, hot whisky-sling would have been the thing; but I am glad that we have proof that heavy clothing and hot soapstones are better and cheaper than whisky-slings.

Among the many letters in regard to temptation comes one with a clipping from the *Parish Visitor*, New York. The title of the article is,

TEMPTATION A MEANS OF GRACE.

If you are strongly tempted, give thanks for it. It is no occasion for mourning or discouragement, but the reverse. It is a sign that you are in the "high places" of Christian experience, where "wicked spirits" (Eph. 6:12) are peculiarly numerous and strong. It is a sure sign that the Spirit of God is in you, for "the flesh lusteth against the Spirit;" it is the presence of the Spirit there that calls forth the malice of Satan. It was when Jesus was "full of the Holy Ghost" that he was tempted of the devil.

The best, if not the only, way to triumph over a temptation, is to turn it into a means of grace. You are beset behind and before, without and within. You find your will itself, seemingly, if not actually, consenting to the snare presented. What then? Christ is by your side; yes, nearer still; he is within you. There is nothing in him that consents to this snare. Take refuge there. Let the force of the temptation drive you instantly into the safe shelter of his purity and power, and so become a mighty means of grace to advance you to a position in Christ which, but for it, you might never reach. Nothing will so foil the tempter and his wiles. Nothing will so strengthen your Christian character and standing.

We are reminded here of the characteristic and suggestive remark of a very quaint but godly man, who had an original way of putting things, peculiar to himself, and who, moreover, was always keenly alive to the designs of Satan, and singularly successful in defeating them. He was asked, "What do you do when the devil tempts you so that you feel dry and cold, and without any spirituality?" "Take him to a prayer-meeting," was the prompt reply; "he don't trouble me long when he finds where he has to go."

The most successful general is the one who knows best how to make use of the enemy's stratagems to his own advantage. So must we turn the weapons of our spiritual enemy against himself if we would come off victorious in the conflict.

The concluding thought in the above has been wonderfully true in my experience. I am sure it will never be a safe thing for me to give up going to prayer-meeting. When I have battled alone unsuccessfully with evil, standing up before Christian friends and neighbors, telling them of my trials, and asking them for their prayers, has always given me a new start and a new portion of God's grace; and above all, dear brother, whether you are sick or whether you are well, and under whatever condition or circumstance you may be, hold fast to the thought, "Ye are not your own, ye are bought with a price."

Sin of my soul! thou Savior dear,
It is not night if thou be near;
Oh, may no earth-born cloud arise
To hide thee from thy servant's eyes!

TOBACCO COLUMN.

THE EFFECT OF TOBACCO ON OFFSPRING.

I HAVE not watched Mr. Root's Tobacco Column very closely, and, may be from selfish motives, for it has never been of any particular interest to me, never having made a habit of smoking. I am, however, surprised that Mr. Root did not know that tobacco killed others than the smokers, although perhaps indirectly. Mr. Terry says some constitutions can bear the poison. Permit me to state, I think not. Let us take those constitutions which appear to bear the poison, and our best physicians say of them, the effects of the poison may not be very marked in the smoker, but the effects are greater in the offspring, and the nervous system is injured in the children of such a man; and at such times, when others would not succumb to a disease, such constitutions are unable to withstand the crisis.

For children of God to use tobacco is very inconsistent. They smoke, and what are they doing, even were it not physically injurious? Are they walking according to the Spirit of God, as we are directed to do, or according to the flesh, as we are warned not to do? Certainly the latter. I can never see a man smoke, especially a young man, without thinking he is gratifying his flesh, and building it up and giving himself trouble in other respects, without one redeeming feature. I will lay aside the extravagance and selfishness of such, and dwell only upon the fostering of what is fleshly, and therefore the smothering of the Spirit of God in his holy temple, who dwells in us, and whose temple we should seek not to defile. For the unsaved, he which has not eternal life, the injury which he may do to those unborn, and he who has their welfare at heart, and is not utterly selfish, will surely give the benefit of a doubt, even should a doubt exist in his mind as to the injury caused by the use of tobacco to such; but such a doubt will not exist in the mind of one unprejudiced, and who has read the opinions of authorities. R. F. HOLTERMAN.

Brantford, Canada.

I have been telling my neighbors that you proposed making any person a present of a smoker

who would quit the use of tobacco. Some say they will quit chewing, but will have to smoke, but I tell them that won't do. David E. Derrick, of Opossum, Tenn., says he has been smoking the weed for some time, and has quit entirely; and he says if you will send him a smoker, and he ever uses the weed again, he will pay for the smoker; and I will also pay you for one if he uses any more tobacco. I do not use it, and never did. I am trying to get all my neighbors to quit the habit. M. M. DERRICK.

Stony Point, Tenn.

Accept our thanks for the kindly interest you take in this department, and for the efforts you are putting forth to make larger the number of men clean from the filthy habit.

I have quit the use of tobacco, and I promise to pay for the smoker if I ever use tobacco again, which I am sure I never shall. C. WITTER.

Salem, Ind., May 12, 1887.

I have resolved to quit using tobacco for a Clark smoker. If I commence again, I will pay your price. P. A. COOK.

Cherokee, Tex., May 2, 1887.

I have quit the use of tobacco, so please send me a smoker. If I commence the use of tobacco again I will pay you for the smoker.

J. F. WEATHERLY.

Woods, Tillamook, Co., Ore., April 26, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

"WHAT HAS THE HARVEST BEEN?"

WHITE clover in this locality was almost a total failure; in fact, during the time it was in bloom we had to feed some colonies or incur the risk of their swarming out or starving altogether. As it has sometimes happened in other years, the conditions of weather, which are entirely unfavorable for the secretion of nectar from clover, are eminently favorable for a heavy flow from basswood. So it was this year. The yield from basswood has been exceptionally good—quite counterbalancing the entire lack from clover. Neighbor Shane, located some six or seven miles from us, reports that he has had one of the best yields of basswood honey he has had for years.

THE T SUPER, AND THE SLATTED HONEY-BOARD.

Our experiments this season have fully sustained what Dr. Miller and others have said in favor of the T super, and I am not sorry that we followed the doctor's instructions as to its proper construction as closely as we did. Indeed, I can not help regretting that we did not take his word for it one step further; i. e., make the super 12½ in. wide instead of 13½, as we did; but I shall have occasion to speak of this further on.

Judging from our experiments with the T super this season, I can scarcely conceive how, used in connection with the slatted honey-board, it can give any more satisfactory results when properly manipulated.

To use it without the honey-board would be simply intolerable, and my experiments with the plain zinc honey-boards, with which there is no provision for a bee-space, convinces me that this latter is about as bad as no honey-board.* To get clean sections with the T super, we must have a honey-board with some sort of provision for bee-spaces above and below the sections. If Mr. Heddon first called the attention of bee-keepers to the advantages of a slatted honey-board with a bee-space provided for above and below, he deserves a vote of thanks, so there!

GETTING BEES INTO SECTIONS, AND WHAT SOMETIMES PREVENTS THEIR GOING UP.

Here at the Home of the Honey-Bees the locality is greatly overstocked, there being something over 300 good colonies in this vicinity. Each colony can not, as a consequence, secure more than its proportional amount of nectar, and this amount is not large. When in most localities the bees would pass up readily and without trouble into the sections, in our locality we must do a considerable amount of coaxing; and, as a means to this end, try those conditions which are the most favorable for getting the bees up into the sections.

On some colonies we placed T supers without contracting the brood-nest; but never a bee thought it his duty to make even an inspection tour above.

In other colonies the brood-nest was contracted from two to six brood-frames, depending upon the strength of the colonies. Where contraction was carried to extremes, the bees did not fail to go above and commence work. Colonies whose brood-chambers were reduced to not less than six frames sometimes did, but as a general rule did not go above. Those that did make some sort of demonstration above had sections on top with full sheets of foundation, and with *no tin separators*. In every case the presence of full sheets of foundation, or the absence of *tin separators*, made a very appreciable difference in the readiness with which the bees entered the sections. I had long known that full sheets were considered a material advantage. I knew, also, that Dr. Miller preferred *wood separators*, stating that the latter seemed to be preferred by the bees; but I did not know that bees showed their aversion to the metal so *plainly*. During a heavy flow of honey in a locality not overstocked, it is possible they would indicate no decided preference in favor of either wood or tin separators. How is this, friends? Let us hear from you.

T-SUPER COVERS NECESSARY.

When we put on the supers at the Hyde apiary, at the beginning of the honey-flow, we had forgotten to bring along T-super covers. We did not think them so very important then, and so matters went for a week or ten days. At last we went down, taking with us the T-super covers and more supers. On our arrival, Mrs. Hyde informed us that the bees had not gone into the sections yet. I was a little surprised, but did not then suspect the cause. At any rate, the T-su-

per covers were placed on all the supers. At our next visit, shortly after, Mrs. H. told us that the bees quite promptly entered the sections after the super covers were placed on. The trouble was, with the whole capacity of the upper story of the hive, the bees could not generate sufficient heat for wax-working in the sections, and for the proper evaporation of honey. Just so soon, however, as the super was closed with the cover, the bees improved the opportunity.

COULD THE T-SUPER BE ADAPTED TO AN EIGHT OR TEN FRAME HIVE?

When a ten-frame hive is contracted to six frames, and then covered with a super $13\frac{1}{2}$ in. wide (equal to the whole width of the hive) the bees are very much indisposed to have any thing to do with the two outside rows of sections—those rows which project over and away from the brood. It is a mistake to carry contraction too far, and yet with a T super wide enough to cover ten L. frames, contraction can not be carried to six frames without removing the brood entirely away from the two outside rows of sections. If our supers were made $12\frac{1}{2}$ in. wide, contraction could be extended to 6 frames, it seems to me, to far better advantage. How is this, friends?

THE SOLAR WAX-EXTRACTOR.

When honey from basswood began to come in briskly, as a natural consequence burrs commenced to crowd up on top of the frames. We have heretofore taken these bits of comb and honey after they have been scraped off, ate what we could, and the rest were dumped into an old pan in the honey-house, to lie around and bait robbers. One day while I was walking through the apiary I noticed the boys wadding up the wax into a ball, and stuffing it down at one side of the hive. The bees, after extracting the adhering honey, would fasten the balls securely to the side of the hive, and it would be quite difficult to remove them afterward. I told the boys to bring out the solar wax-extractor and set it in position, which they did. Thereafter the chunks of wax and honey were dumped into the extractor. In a few minutes the comb would melt and run down through the perforated metal. In the course of ten days we found that we had secured, just from these little pieces of wax, 13 lbs. of nice yellow wax—as nice as any one ever saw, and nearly 5 lbs. of basswood honey. The color of the latter was a little dark, but its flavor, it seemed to me, was quite as good as that which we take in the ordinary way with the honey-extractor.

The solar wax-extractor, as you are aware, is automatic. It can be located in the sun, right where you want to work, and you do not have to run away down to the honey-house to put away a chunk of honey that your poor stomach has long ago refused to take care of. In three or four days your wax and honey accumulations will probably have pretty nearly filled the pan. At night, after the sun has gone down, the wax will harden into a nice yellow cake, and the honey can be drawn off at the honey-gate near the lower part of the pan. You thus keep your apiary neat and tidy; and not

* I should have said here, that if the plain zinc boards are bee-spaced on both sides with the quarter-inch strips they will answer perfectly well.

only that, you have your refuse put immediately into marketable shape. Let us see: In ten days, just from little bits of scraps we obtained 13 lbs. of an extra quality of wax. At the lowest figures, or 22 cents per pound, this would amount to \$2.86; 5 lbs. of basswood honey at, say, a low calculation, 7 cts., 35 cts. Total, \$3.21.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 15, 1887.

It is the Lord: let him do what seemeth him good. I. SAM. 3. 18.
Shall not the Judge of all the earth do right?—GEN. 18.25.

THOMAS WM. COWAN.

The following card comes to hand from Professor Cook:

MR. EDITOR:—A letter from Mr. Cowan, editor of the B. E. J., tells me that he sailed on the 9th for America. Mr. Cowan is a gentleman of culture, a man of generous heart and purpose, and perhaps the most thoroughly informed bee-keeper in England. Let us all show him that we appreciate real worth, by giving him a most hospitable welcome and entertainment while he is with us. I wish we could keep him till our North-American Association meets in November, but I fear we can not.

Agricultural College, Mich., July 11, 1887.

All right, friend Cook. We heartily second all you say. We hereby extend to Mr. Cowan a hearty invitation to call upon his friends in Medina. If he can make it convenient to stop off with us for a while we will give him a hearty welcome.

A WELL-BALANCED JOURNAL.

THAT is what we are trying to have GLEANINGS, but there seems to be a constant tendency toward giving undue prominence to certain matters; but if we consider all the different subjects within our scope, at least to some extent, we are obliged to be continually repressing as well as encouraging. Just at present the number of kinds words for the Home Papers, accompanied by Scripture texts, and strong earnest words from good men and women, would seem to all demand a place, but space forbids. Sometimes, it is true, I take the liberty of adding a page or two to give you something I deem valuable in regard to some of my pet hobbies and industries. But this costs money, and I don't feel as if I ought to do it unless I can feel pretty certain that our readers will be benefited enough to warrant the expenditure.

THOMAS HORN.

I HOPE, dear friends, we are getting near the last chapter. Now, while I really can not see wherein I have been at fault in the matter, nor can I see clearly how I shall be able to guard against similar impositions in the future, I have decided to make good the amounts that our subscribers lost by sending to Mr. Horn. Tell me briefly how much money you sent him, for which you received nothing, and we will place the amount to your credit, to be taken

in bees and queens at our regular prices. As a matter of course, no bees or queens will be taken from any apiary where foul brood does now exist or has existed for six months or more. We can not agree to pay express charges, however, as did Mr. Horn; and I hereby protest against any other advertiser making any such or similar offer. No one can pay express charges to any point, when it is often likely to be much more than the amount of money received. We have a record of the names and of the amounts, in a book; but the whole correspondence was sent to Mr. Horn, to enable him to fix the amounts of notes he was to send out. Nobody has ever yet received a note from him, so far as we can learn, and it is on this account that I propose to settle as above. If Mr. Horn can tell such willful falsehoods now, when there seems to be no object in it, he probably was a swindler in the outset.

SPECIAL NOTICES.

WANTED—BACK NUMBERS OF GLEANINGS.

At the present time we are making up and binding a few back volumes of GLEANINGS, from the time it started up to the present time. We find that we lack the following: March and November, 1881; Jan. 15, Feb. 15, March 1 and 15, and Dec. 1, of 1882. Any of our readers who may have a copy of the above numbers to spare, we would gladly pay them 10 cts. for each copy.

REDUCTION IN THE PRICE OF PARAFFINE.

THERE are many uses to which this article may be applied at this time of year, and later, such as waxing honey barrels and kegs, and waxing bee-feeders for feeding up your bees in the fall, etc. We are pleased to announce the following low prices: 15 cts. per single pound. In cakes of about 12 lbs., 12½ cts. per lb. In original cases of about 250 lbs., 10 cts. per pound.

A CARLOAD OF BASKETS.

As a light and cheap package for handling and shipping small wares, nothing compares with what is commonly called the "market basket." We have for years, in our counter store, given away a basket when a customer bought enough goods to fill it; and merchants are more and more finding out that it is cheaper for them, and a great convenience to their customers, to practice the same thing. Ever since we have been making the Clark smoker we have been shipping them by express in baskets, 5 in a basket, because we could not begin to make a crate to hold 5 smokers, for twice what a basket costs, and then the crate would weigh as much, or more, than the smokers. I believe there are many uses to which we might put these market baskets if we get them cheap enough, and always have them handy by. We use so many that we buy them by the carload, and thus get bottom prices. One great objection to shipping baskets is the enormous freight charges demanded by the railroad companies. Baskets with handles on, and nested in the ordinary way, are charged at four times first-class freight; but the last carload we received a few days ago are so packed that they will go as double first-class freight, the same as bee-hives nailed up.

These baskets in question are put up, three sizes in a nest, as follows: Three ¼-bushel, four ½-bushel, and four ¾-bushel baskets, making in all eleven baskets in each nest. All include handles, but they are loose, and have to be tacked in after you get them. They are the celebrated "Diamond" basket, and better than any other we have ever had. As they come to us thus nested, and as they ship at a lower rate of freight than in any other shape, we have decided to sell them by the nest, at the following prices: 35 cts. per nest of 11 baskets; \$3.25 for 10 nests; \$30.00 per 100 nests. At this very nominal price, your baskets cost you about 3 cts. each. We also include tacks to nail the handles in with, at these prices. Each nest weighs 8 lbs., and you can tell what the size is by turning a half-bushel basket upside down on top of another.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; C. H. Green, Waukesha, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretzmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas; W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. P. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3btfdd Hamilton, Hancock Co., Illinois.

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To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

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Price list free. (Near Detroit)

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers."
11tfdd

BEES! Italian BEES! Italian BEES!
FULL COLONIES, \$4.50.
THREE-FRAME NUCLEI, \$2.25.
11tfdd G. W. GILLET, Wellington, Ohio.

ONE-PIECE SECTIONS

A SPECIALTY.

Sections smooth on both sides, V or nearly square groove, dovetailed ends, or to suit, at \$3.50 per 1000.

B. WALKER & CO.,
Capac, St. Clair Co., Mich.

PURE ITALIAN BEES FOR SALE.

Two-frame nuclei, \$2.50; 3-frame, \$3.00. Full colony in A. I. Root's Simp. hive, \$5.00. Each nucleus and full colony to contain a tested Ital. queen and plenty of bees and brood, all on wired L. frs., combs drawn from fdn. Each of the above with a \$1.00 queen, 50c less. To be shipped in July. Safe arrival guaranteed. Address N. A. KNAPP,
13d Rochester, Lorain Co., Ohio, U. S. A.

ITALIAN QUEENS.

Rared from select mothers. Untested, 75 cts.; Tested, \$2.00.
5-16db H. G. FRANK,
North Manchester, Ind.

PURE ITALIAN QUEENS.

Tested queens, \$1.50 each; untested 75c. each; 3 for \$2.00. All bred from select imported mothers. By return mail. 100 2-frame nuclei with untested queen at \$2.00 each.

11tfdd D. G. EDMISTON, ADRIAN, LEN. CO., MICH.

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.

—SEND FOR MY NEW PRICE LIST—
E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.
4tfdd

BY RETURN MAIL.

Six warranted Italian queens.....\$ 5 00
Fourteen ".....10 00
Safe arrival guaranteed.
13tfdd H. ALLEY, Wenham, Mass.

8-FRAME NUCLEI!

F. HOLTKE SELLS FOR \$3.00.

Eight frames of bees and brood with \$1.00 queen in 6x13 in. frames, equal to 5 Simplicity frames, for only \$3.00. Must be sold by the first of Aug., on account of sickness.
13-14d FRED'K HOLTKE,
Carlstadt, Bergen Co., N. J.

THE NEBRASKA APIARY.

3-frame nucleus hybrid bees (all fra's containing brood) with queens, \$2.25; full colonies of bees in one-story 10-fr. Simp. hives, \$5.50; chaff hives (see in cut of apiary, Apr. 15th GLEANINGS), \$2.50; two-story Simp. hives set up all complete and well painted, \$1.75; 4x4 1/2 V-grooved sec. (less than 500, 1/2 ct. each); per M. \$4.50. Photo of apiary "to boot" on cash orders of \$5.00 and over. J. M. YOUNG,
13tfdd Rock Bluffs, Cass Co., Neb.

Choice Italian Queens.

One untested, 75 cents; six, \$4.00; twelve, \$7.00. Tested, \$1.00, from natural swarming.
12-16db Merican Stibbens, Oxford, Butler Co., O.

AFTER JULY FIRST

I will sell brown or hybrid bees at 50 cents per lb. Black or brown queens 25 cts.; hybrid 50 cts.; one-dollar queens 75 cents. Queens the same price by mail.
131415d THOMAS GEDYE,
LaSalle, LaSalle Co., Ill.

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KIND WORDS FROM OUR CUSTOMERS.

The goods we ordered from you this spring pleased us very much; the platform scales are cheap. I can weigh my bees, honey, or family on them.
Youngstown, Ohio. W. A. MITCHELL.

I write this to let you know that I am well pleased with the A B C book. I have learned more about the honey-bee from that book than I could have learned in any other way for a long time.
Stony Point, Tenn. M. M. DERRICK.

THAT IMPORTED QUEEN.

The imported queen I got last season did well, and is doing well yet; her bees are very dark, all well marked. Quiet, and as good as any in the apiary to gather honey, and she has laid more eggs by half than any other queen I have.

Wyoming, Ont., June 21, 1887. A. E. HARVEY.

PROMPTNESS AND GOOD WORK.

The extractor ordered of you was received in good order, and to say that I am well pleased would be putting it lightly. It is more than I expected for the amount of money it cost. My order went out the 18th of June, and on the 23d my extractor was at Morristown—just five days'—quick work, you see.
L. DYER.

Morristown, Ind., June 27, 1887.

OUR 50-CENT HAND-SAW.

The package containing the 50-cent hand-saw, etc., was received yesterday, only six days since I sent the order. I was not expecting it so soon. Accept thanks; that saw is so nice I keep congratulating myself on having sense enough to send for it. Your A B C told me what to do with the drone-layers in two of my Italian colonies, and one of them has a nice yellow queen now. You see, I have learned only just a little.
MARY L. BECK.

Bethel, O., May 20, 1887.

BEES ARRIVED IN FINE CONDITION.

I have waited a few days after the arrival of the bees, to see how they behaved. They reached this place on the noon of June 3d, filled with life, and seemingly happy to make a visit to New Hampshire. I gave them a new hive, and every bee entered the new residence. The next morning they were placed in the apiary, and from that time to this have represented themselves as perfectly contented. On examination we found the queen, and trust that both queen and bees are in the best condition. The metal corners are a success, and with these one can make a very nice and substantial frame. We have no trouble in attaching them to the frames, as we followed the directions sent with the package.
H. C. BLINN.

Shaker Village, N. H., June 8, 1887.

Hurrah for the Fair!

Now is the time to work up your home market, and there is no better place than at your local fair. Don't let the chance of advertising your business slip by. A fine exhibit and a judicious distribution of

THE BEAUTIFUL CHROMO CARDS

Will set the business booming. A leaflet or circular will soon be thrown away or lost; but this card will be taken home and studied by a score of persons, making your name a household word for miles around. Our card is especially gotten up for bee-keepers, brilliantly printed in eight colors, and is both instructive and amusing. Send for free samples, and get out of that old-fogy rut.

ITALIAN QUEENS.

I am also trying to breed a superior strain of Italian queens, a cross between the old Quinby stock and Doolittle's, bred in an apiary three miles from other bees. I can almost guarantee their purity. They will not disappoint you.

Address J. H. MARTIN,
151fd Wash. Co. Hartford, N. Y.

\$2. FULL SWARMS. \$2.

Fine Italians. Hayhurst's stock, before Aug. 20. Full swarm with queen, no combs, \$2.00. Same with 8 brood-combs, \$3.00. Same with 8 combs in S. hive, \$4.00. C. B. THWING, Hamilton, Mo.

Highest Quality Italian Queens

at Lowest Prices. Untested, 75 cts. Selected tested, reared in 1886, \$1.50; 2-fr. nucleus with untested queen, \$2.00; with tested queen, \$2.50. Bees, 50 cts. per lb. FRANK M. BALDWIN, Marion, Ind. 14-15fd

Beautiful Italian Queens.

J. F. Wood wishes to inform the readers of GLEANINGS that he is now filling all orders promptly for those golden queens, that have given universal satisfaction to all his customers the past two seasons, at 75 cts. each. I use no lamp nursery. Do not fail to send for my 1887 circular. Address 14-15 16d

JAMES F. WOOD, North Prescott, Mass.

BEES, 50 Cts. Per Lb.; 5 lbs., \$2.00; 10 lbs. and a tested Italian queen, for \$4.00.
15d C. G. FENN, Washington, Conn.

Italian Bees and Queens.

Full colonies, \$6.00. Bees, per lb., 75 cts. Frame of brood and bees, 75 cts. Tested queen, \$1.25. Untested, 75 cts. Mismatched, 35 cts. Queens reared from imported mother. MISS A. M. TAYLOR, 141fdb Box 77. Mulberry Grove, Bond Co., Ill.

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For the Manufacture and Sale of

BEE-KEEPERS' SUPPLIES

8 and 10 frame Simplicity hives furnished at a great reduction in price. Nice sections and foundation specialties. A full line of supplies always on hand. Write for my new price list
12-15d F. M. ATWOOD, Rileyville, Ill.

Tested Italian Queens

REDUCED TO \$1.00 EACH.

Untested, 75 cents each. Bred either from imported Bellinzona (dark strain) or albino (light strain), as preferred. Orders filled promptly, and satisfaction guaranteed. Circular free. 91fdb Chas. D. Duvall, Spencerville, Mont. Co., Md.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3b1fd

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey*.—We quote choice comb 8@10 cts.; latter is for choice white clover in good condition. Strained in bbls., 3½@4 cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted in bbls., 4¾@4½ cts.; in cans, 5 cts. Market dull and receipts increasing.

Beeswax steady at 21 cts. for prime.

July 21. D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

MILWAUKEE.—*Honey*.—The old crop of honey is very nearly out of sight in this market, and many are now ready for the new crop. We quote as follows:

Choice comb, 1-lb. sections, new;	14@15
" " " " old,	12@12½
" " 2-lb. " not salable,	10@11
Extracted, white, in kegs and bbls.;	7@7½
" " " " Tin, small,	7½@8
" " " " dark, in kegs and bbls.,	6@6½
" " " " Tin, small,	6½

Beeswax, 25. A. V. BISHOP,
July 21. Milwaukee, Wis.

PHILADELPHIA.—*Honey*.—Honey and wax very quiet. Quotable nominally as last reported.

July 22. PANCOAST & GRIFFITHS,
Philadelphia, Pa.

BOSTON.—*Honey*.—1-lb. sections, 13@15
2-lb. sections, 11@13
Extracted, 5@7

Beeswax, 26. BLAKE & RIPLEY,
July 22. 57 Chatham St., Boston, Mass.

NEW YORK.—*Honey*.—The honey outlook in New York and Pennsylvania is very good.

Beeswax, fair demand; selling at 22@23c.

July 22. THURBER, WHYLAND & Co.,
New York City.

ST. LOUIS.—*Honey*.—There is no change to report on old honey or wax since our last report. There is some light demand for choice new white-clover honey in comb, 1-lb. sections, at 12½; good fair stock, 12c.

W. B. WESTCOTT & Co.,
July 22. 108 and 110 Market St., St. Louis, Mo.

DETROIT.—*Honey*.—Very little new comb honey in market. Demand better and prices advancing. We made a sale to-day at 14c.

Beeswax, 23c. M. H. HUNT,
July 22. Bell Branch, Mich.

CHICAGO.—*Honey*.—Old crop of honey is exhausted, some few consignments of the new crop coming forward, and selling at 16c for choice one-pound combs. Not any two-pound sections are at present here. Extracted honey, 5@7.

Beeswax, 22c; light offerings. R. A. BURNETT,
July 21. 161 So. Water St., Chicago, Ill.

CLEVELAND.—*Honey*.—There is no new honey coming forward, and we can not give definite prices. Considering the shortness of the crop, however, we think 15@16 for best white 1-lb. sections should be obtained.

A. C. KENDL,
July 26. 115 Ontario St., Cleveland, Ohio.

WANTED.—All the bee-men who see this adv't to send us one hundred pounds of 1-lb. and 2-lb. sections of white comb honey, as sample, by express, stating quantity, and price for same, cash, delivered in Kansas City, Mo.

CLEMONS, CLOON & Co.
Cor. 4th & Walnut Sts.

WANTED.—To purchase from one to five thousand pounds choice white-clover honey in one-pound sections. Crates to average about 25 lbs. each.

I. T. CARSON & Co.,
15-16d 325 West Main St., Louisville, Ky.

Bees for Sale in Florida,

In Langstroth hives, at \$3.00 to \$4.00 per colony.
J. L. Wolfenden, Evinston, Alach. Co., Fla.

BEEES

That Have Stood the Severe Northern Winters are the Hardest.

I have a limited number of Italian bees for sale at \$5.00 per swarm in shipping-case; also a few queens, tested, \$1.25; untested, 75 cts. Must be sold during August. Send at once.

WM. H. HUSE, Manchester, N. H.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

Has received many complimentary letters in regard to his little book,

"THE PRODUCTION OF COMB HONEY."

The following is a sample:

Friend Hutchinson.—Your little book was read with very great interest; and as I closed it I said to my wife, "I wish Mr. H. were here this evening. I think I could keep him busy awhile with questions." There is a great deal in your book which I know by experience to be correct; and if your whole plan is found to be so, and is generally adopted, it will certainly work a revolution in bee-keeping.

Yours Truly, E. M. HAYHURST.

Kansas City, Mo., April 10, 1887.

Price of book 25 cents. Stamps taken, either U. S. or Canadian.

Fine Italian Queens, reared from best selected, tested, imported mother, 75 cts. each, by *return mail*. 10tfdb

FOR SALE!

A good, improved 160-acre farm, with 20 acres choice timber. Also

82 COLONIES OF BEES

in good condition; must be sold before Sept. 1st.

WHO WANTS A BARGAIN?

Call, or address

15d Wm. H. KING,
Newtonville, Buchanan Co., Iowa.

HONEY - STAND

—FOR—

RETAILING EXTRACTED HONEY.



As the honey crop is in, and the time for fairs is approaching, you may be looking about for something neat and tasty for showing up your honey in nice shape. The above cut represents a nice stand for extracted honey, in different styles of packages. The ends are made of blackwalnut, and the shelves and back of basswood, stained dark color. We can furnish the above, nailed and lettered, complete, as shown, without the tin cans or tumblers, for \$1.00, or 10 for \$7.50. In the flat, 60 cts. each, or \$5.00 for 10.

A. I. ROOT, Medina, O.



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AUG 1, 1887.

No. 15.

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PAINTING HIVES, ETC.

DOOLITTLE'S VIEWS ON THE SUBJECT.

ON page 496, current volume of GLEANINGS, the editor asks if painting the front of the hives in different colors makes any difference with the bees as to their ability to distinguish their own hive. Yes, I think it does; but the hive has not so much to do with it as does the alighting-board, or projecting part to the bottom-board. Several times I have been obliged to change bottom-boards to some old hives, the bottoms to which had been made of basswood; and when the new bright pine bottom-boards took the place of the old ones, the bees returning from the field would hover about for a long time before they dared to drop upon this (to them) strange object. This reluctance to enter the hive would last for two or three days, when finally they became used to it, and in two weeks a change back again to a dark weather-beaten board would cause the same reluctance to entering again. As my bottom-board projects ten inches in front of the hive, for an alighting-board it will be seen that the whole width would present quite a different appearance. Again, I now use one hive for two nuclei, with the entrances only about 16 inches apart, and facing the same direction, the hives being painted all alike; yet by the use of the elevated boards spoken of in the last paragraph of my article on page 496, I never lose a queen by her entering the wrong entrance. By changing this board I can cause the same hesitancy with the bees about entering their own home, spoken of above.

CHILLED BEES.

Page 498, July 1 GLEANINGS, has something to say

about chilled bees, saying, "Perhaps Doolittle may enlighten us further." Out of some five different experiments along the McFadden line to see how long I could keep half a teacupful of bees alive after being chilled, 4½ days was the latest point at which any could be brought to life again by warmth with moisture, and 3½ days by dry heat. Moist warm air seems to be more effective in restoring such bees than dry or stove heat. These bees were shaken on the snow, with a temperature a little above the freezing-point; and as soon as they ceased to move I picked them up and carried them to the cellar, of the same temperature in which bees winter well. From the cellar, a few were taken every half-day, and warmed, with the above result. All of them had empty stomachs, and I still have a desire to try bees gorged with honey, to see if that makes any difference. In two instances, after picking up half a teacupful of bees, and leaving them in a cup or pile, they came to life again; while if scattered about, none did. It would seem that this would be against the McFadden plan, if nothing else about it is. Prof. Boynton was sanguine that the thing would work, but he has gone out of bees, and I have lost track of him.

CAPPED QUEEN-CELLS AND FIRST SWARMS.

It would seem as if Prof. Cook must have read my article on swarming rather carelessly (page 510, July 1). I did not say that first swarms never leave without sealed queen-cells, as the professor will see if he carefully reads my article again. I said the *first swarm of the season*, by which I meant, if Prof. Cook has 20 colonies to cast swarms, the first of those 20 swarms will not issue without one or more capped queen-cells; and with me this rule holds

good, no matter what variety the bees are. After this first one, others often come with no preparation for swarming, as Prof. Cook tells of, as I conceded in my former article. Then again, friend Cook, Doolittle made no "assertion" regarding even the first swarm of the season. I said I had never known them to do otherwise, but did not say but they might. Candidly, friend C., did you ever know the very first swarm that issued in an apiary to do so before the queen-cells were sealed?

QUEEN-CELL PROTECTORS.

I wish to say a few words more regarding queen-cell protectors. Since writing last about them I sent for ten of friend Root's make, and I find them too flaring, or too large at the big end. The taper wants to be so slim that the protector strikes the sides of the cell before the point comes to the apex of the protector, keeping it back from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch, while these last allow the point to stick through about that far, so the bees can tear the end off if they wish. When just right it is impossible for the bees to bite into the cell—at least, so it seems to me.

Now a word about using them. Instead of folding the ends of the wire cloth over the cell, as friend Root directs, put a wooden plug or a piece of corn-cob in after the cell, and fold the wire cloth over that, or, better still, clip off what of the wire runs above this stopper. In using, lift a comb from the hive; and in a place near the brood, mash with the finger a few cells down to the base of the comb; and in this indentation in the comb place the base of the protector, pressing it in by bearing against the side of the protector and stopper. This imbeds it in the comb so it will stay; and when it is lowered into the hive the combs come together as if nothing were there, after which it is impossible for it to fall out. This does not injure the combs any; for as soon as the protector is taken out, the bees raise the cells again. To avoid chilling the cells in cool weather, take to a warm room to fix in the protectors; and when ready to go to the hives, put the protectors around next to the body, in front, under the waistbands to the pants, the same as cartridges would be slipped in a belt. This keeps them in an upright position, snug and warm, and allows of stooping to open hives, etc. Embryo queens are easily chilled, and I mistrust this may account for some of the failures.

G. M. DOOLITTLE.

Borodino, N. Y., July 18, 1887.

Many thanks to you, friend D., for the result of your experiments in keeping chilled bees. I am astonished to know that you succeeded in keeping them as much as four days and a half; but I was prepared, after all, to hear that the period might be longer than we had formerly put it, for I have made a few bees come to life at different times, when it seemed to me as if they had been out of stores a good deal longer than 24 or 48 hours. Now, who will help us test this matter by chilling some bees when they are full of honey? Take some from a hive right in the height of the clover or basswood flow, for instance, and chill them in an ice-house, just so they won't move, and keep them there. Thanks, also, for the suggestion in regard to the queen-cell protector. This illustrates once more how small a matter will make all the difference between success and failure.

CELLAR VS. OUTDOOR WINTERING.

SOME EXCELLENT IDEAS FROM FRIEND HUTCHINSON IN REGARD TO THE MATTER.

IT is a pleasure indeed to discuss apicultural problems with such a man as O. O. Poppleton—one who can lay aside prejudices, and calmly and fairly try to find *truth*. I am glad to note with what unanimity most of the bee-journals and their contributors are dropping personalities—discussing *principles* instead of men.

It is true, that these matters under discussion between friend Poppleton and myself are foreign to the main topic of my little book; but they are important and seasonable.

In regard to caring for bees in the cellar, there may be a grain of truth in what Mr. Poppleton says. If a man wishes to leave his bees uncared for all winter, and go off to the land of flowers, it may be better to protect them thoroughly upon their summer stands. Most of our bee-keepers, however, stay at home winters, and to them this question of supervision is not a weighty one. Take my own case, for instance. My bees were kept in a cellar under the sitting-room, hence there was no expense for a fire on account of the bees, or else there was no expense for a fire to keep *ourselves* warm. I presume the majority of bee-keepers are situated in *exactly* this manner. And now about the supervision in regard to temperature. We ripped apart, for a short distance, two breadths of the carpet, bored a hole in the floor, and suspended a thermometer by means of a string attached to a cork that just filled the hole in the floor. A rug was kept over the slit in the carpet. Our little girls kept watch of the temperature. It seemed to afford them considerable pleasure to have each one guess what the "tempuchary" (as the youngest one called it) was, and then look and see who had guessed the nearest. The "tempuchary" varied from 40 to 48°; most of the time it was 45°. When we had extremely cold weather, accompanied by high winds, the mercury would sink to 46°. Upon several occasions I kept a lamp-stove burning all night in the hatchway, and burned, perhaps, between one and two gallons of oil. Had there been a double door to the hatchway I do not think this burning of lamps would have been necessary. The mercury reached 48° during warm days upon the approach of spring. Nearly all cellars need a drain, and it is just about as easy to make the drain so that it can be used for a sub-earth ventilator as not. My own cellar-drain is so arranged; but I have not allowed the air to pass in through the drain for the last two winters. Do you ask why? Well, I had my doubts as to its benefits; and, besides this, it lowered the temperature. Had the pipe been longer it might not have done so; it is only about 70 feet. I had 20 colonies buried in a clamp last winter. They were put in about the middle of November. A wooden tube, 3 in. square and about 8 feet long, extended from near the bottom of the clamp up through the covering of earth, and projected 4 or 5 feet above the surface. At the bottom of this tube was kept a thermometer, whence it could easily be drawn by means of a string. When the bees were first put up, the temperature in the clamp was 47°. It gradually sank, and in a week had reached 45°. Here it remained until steady cold weather came on, when it again gradually fell until it reached 42°, where it remained unchanged for nearly four months. When the warm days of

April came it gradually rose to 45°, at which point it was when the bees were removed. Now, the bees in this clamp wintered splendidly, and there were no fires and no supervision, and the conditions were the same as though they had been in an outdoor cellar. I am aware that some bee-keepers use a fire to warm their bee-cellars, and, with some cellars, this may be necessary; but with an underground cellar that receives a steady supply of heat from the earth, fires are wholly unnecessary; and all the supervision that is needed does not amount to any thing practically, so far as cost is concerned—at least, not to the man who lives at home winters.

Mr. P. speaks of the "wear and tear" of putting bees in the cellar and taking them out again. I fail to see where there is any "wear and tear." He further says, a cellar won't last always, and must be repaired. This is true of some cellars. A cellar stoned up, and under a building, such a one as Mr. Taylor's or Mr. Heddon's, will require no repairs for a lifetime. You, friend Root, speak of the cost of preparing the cellar for wintering bees; that the windows must be darkened; sub-earth ventilation furnished, etc. Candidly, my friend, do you, or does *anybody* know that all these things are needed? Do we *know* that a cellar must be dark? and if we do know it, is it expensive to darken the cellar? Where is the man who *knows* that sub-earth ventilation, or *any* ventilation for a bee-cellar is needed?

Friend P. says there are two "ifs" in the quotation from Prof. Cook; and then in the next sentence he (Poppleton) says, "Chaff hives are safe in severe winters if" (there it is again) "they are properly constructed and handled;" but the really weak point is this part of the argument is found in this sentence: "Many of us older heads have supposed that we had found the royal road to success, and would reach it, too, for a series of years, when some *climatic or food changes* would occur, and the goal would be still ahead." I wish to call attention to the part I have italicized. The two "ifs" in my quotations from Prof. Cook are surmountable. We *can* have the cellar right; ditto the food; but in outdoor wintering those climatic changes are an element of uncertainty, the damages from which can be only partly averted by chaff hives or protection of some kind. In the cellar we can have the conditions the same every winter. I have yet to lose a colony having cane sugar for stores, and wintered in a warm cellar, and by the methods that I now employ I can have the winter stores consist of so large a per cent of sugar, and that, too, in such a position that it will almost surely be used during the winter, and all with so little labor, that the damage of loss from unsuitable food practically amounts to but little. It is so slight that I prefer to take the risk rather than to perform more labor and take no risk. I will admit, that some honey is equal to sugar for wintering purposes; and I sincerely wish that friend P. could give us an article upon the subject of getting good honey for wintering our bees, and also tell us why he thinks that colonies worked upon the top-story plan do not winter so well; yes, and point out "the very obvious reasons" why neighbor Doane's bees did not winter so well as mine.

Yes, friend P., it is an experienced apiarist who can make it pay to spread the brood, if any one can. It is also true, that the time for doing this work comes before the rush of the honey harvest; and I do not doubt that, combined with spring protection,

many apiarists might find it profitable; but I feel satisfied that the same results, or nearly as good results, may be secured with no labor; and certainly no bee-keeper need spread the brood in the spring, simply for a lack of something to do. What I mean by accomplishing the same results with no labor is, using hives having a brood-nest of such capacity that a queen of ordinary prolificness can and will keep the combs filled with brood without "horse-whipping" her by spreading the brood. We can often increase our profits by increasing the number of our colonies, rather than by increasing the average products of those colonies we already possess. In other words, "securing the greatest amount of honey with the least expenditure of capital and labor" does not necessarily mean securing large yields per colony.

I will explain why I consider it more profitable to winter bees upon sugar when raising comb honey. The prices of extracted honey and sugar are very nearly the same; or, at least, they have been, hence the profit could not be very great, while the price of comb honey is twice as great. I am aware that many believe that twice as much extracted as comb honey can be produced, and perhaps this is true in a majority of cases; but those who are well up in the production of comb honey, and employ the best methods, know that they can secure at least three-fourths as much comb as extracted honey.

I feel now very much as though I had had my "say" upon this subject; and I should be very glad indeed to let some one else speak.

W. Z. HUTCHINSON.

Rogersville, Mich., July 20, 1887.

I am very glad indeed to know, friend H., that you have recently succeeded so well with clamps. But are you satisfied now just where the cause of your former failures lay? and do you think the clamp as safe, or safer, than a good cellar? and in regard to cellar wintering or outdoor wintering, have both you and friend Poppleton taken into consideration different localities? While it is no doubt safest in Michigan to winter in the cellar, I do not believe the climate of Ohio will warrant the same conclusion for our locality.

THE PAST, AND THE PROSPECT.

BRIGHTNESS THROUGH DISCOURAGEMENT.

MOST of the readers of GLEANINGS are aware by this time, no doubt, that the honey crop of this season is likely to be exceedingly short. My locality is no exception to the general rule, unless it is in being rather worse, if any thing, than the average. In fact, the season here has been most exceptionally bad. It opened badly. Fruit-blossoms produced scarcely a ripple on the apian sea. White clover came in abundance, but, except for two or three days, its blossoms remained almost unvisited by the bees. Basswood bloomed early and freely, but the taste of basswood honey never became perceptible in the hives. Mustard and sweet clover came at about the same time. For about two weeks the bees worked well on these in the early morning, continuing with less vigor on sweet clover throughout the day.

Mustard is gone now, and sweet clover, in the in-

tense drought that prevails, yields scarcely any honey. Strong colonies, devoted to extracted honey, are gaining very slowly. Colonies run for comb honey are doing nothing, except that some of them are putting a little into the brood-chamber. Ordinary colonies are not gaining at all; and many, I think, have less honey in their hives than they had in the spring. I have heard of several cases where bees were found starving during what is usually our best honey-flow.

As a matter of course, there has been little or no swarming. Only one colony in my apiary tried it, and that, on being returned, thought better of it and did not repeat the attempt. All colonies are unusually weak. Unless we have heavy rains soon, heart's-ease will fail, and with it our only hope of any income from bees this year.

What is the lesson to be learned from this? Dark as the prospect is, it is not without some points of brightness. In the first place, the markets will probably be cleared of all of last year's honey. This of itself is by no means a small thing in the establishment of better prices for this year's crop. Only those who have had a large experience in selling direct to retailers can have an adequate idea of the depressing effect on the market exerted by even a small quantity of unsalable honey. I can recollect instances where it would have paid me to have bought out a retailer's stock of honey at his own price, rather than let it remain on his hands, spoiling his trade, preventing the sale of other honey, and lowering its price. Now, if those who have any honey for sale this year would only hold it back until the market is bare of all old honey, and the demand for new begins to be urgent, they might realize almost, if not quite, as much for their short crop as they would have for a full one; at the same time preparing the way for better prices next year. Honey will probably be in greater demand this year than last, for the same drought that made a failure of the honey crop produced a great shortage in the yield of small fruits, so that there should be an unusual demand for honey as a table-sauce.

Many bees will probably starve the coming winter, which, I think, will be a good thing for bee-keeping as a whole. In fact, I know of only one thing that would do more to put bee-keeping on a sound and remunerative basis than a wholesale reduction of the number of bees kept, and that is a corresponding reduction in the number of careless and incompetent bee-keepers. I know this idea is not popular with some, but it is my honest opinion.

Although many of those who meet with losses will become discouraged and give up the business, there will be enough who will go at it again to make the trade in bees and queens good.

Look at it which way we will, I think there is much of encouragement to the careful and energetic apiarist. The present loss may be hard to bear; but when all things are considered, it may give greater results than a more apparent success.

So failure wins; the consequence
Of loss becomes its recompense.

At any rate, good management will go far to retrieve our losses and prevent them from becoming defeats. Stick to the bees, then, and give them the best of care. If there is any chance for a fall crop, be sure that the bees can make the most of it. Above all, be sure that your bees go into winter

quarters in as good condition as you know how to put them. To insure that, begin now.

Dayton, Ill., July 14, 1887.

J. A. GREEN.

Friend G., you are on the right track, I am sure. The short crop has brightened things here at the Home of the Honey-Bees already. The large lot of glassed sections of honey we have been trying in vain to sell for two years is now almost gone, and probably will all be gone before this reaches our friends. Every thing in the shape of honey, that has been standing idle for years back, most of it, is being moved off at a price that pays cost, interest on the capital that has been lying idle, and a little more. The scarcity of fruits in our own town has started a brisk local trade. For some years back I have been in the habit of enjoying droughts or excessive rains; that is, so far as I can enjoy any thing that harms my neighbor, for these things mean better prices. The dry weather has spoiled most of the cucumbers in the gardens of Medina, and, as a consequence, we are getting extra prices for the product of our vines; and thus, you see, the money we put into sub-irrigation a year ago is beginning to come back; and the cucumbers planted over those bog-holes are now booming. The real wide-awake bee-keeper need not be worried nor troubled. But we should also learn a lesson by having a little ahead to carry us over bad seasons. And we should learn a lesson about being in a hurry to make investments and to enlarge our business. Go slow and go sure. Keep in mind all the while that sickness, drought, floods, and tornadoes may be expected at almost any time. If they do not come, all right; and when they do come, you are, at least in a measure, prepared for them.

EXTRA-THIN FOUNDATION.

C. C. MILLER DISCUSSES THE WIDTH OF SUPERS,
ETC.

A FEW years ago I tried some extra-thin flat-bottom foundation, and decided against it. Afterward I tried some extra thin with natural base, and was not pleased with that.

This year I decided to use some flat-bottom thin, in spite of any objections, because I thought there could be less objection on the part of consumers to the thinnest foundation (I use sections full of foundation), and because the thinnest foundation would cost less per section, even if it cost more per pound. I have not had an opportunity to test it this year in a full honey-flow, for the worst drought ever known here has prevailed, and on the 20th of July there is less honey in the hives than when taken from the cellar. Only a very few colonies have stored any thing in supers, except some in the bait sections. But what little observation I have been able to make agrees with my former observations—that when bees have in their possession extra-thin foundation they are liable to dig holes in it and tear it down at the sides, at such times as they are storing little or no honey. I am inclined to the opinion, that, when honey is yielding well, this objection may not hold; but there are so many times when the difficulty may occur that I think I never

care to use extra-thin foundation again. I somewhat question whether bee-men themselves are not about the only ones who raise any objection to comb honey containing what is ordinarily classed as thin foundation, say 10 or 11 feet to the pound. Flat-bottomed foundation suffered more than that with natural base; but as they were not used in the same super, no positive conclusion could be reached. The experiment as described on page 517, by Mr. Root, seems perfectly fair and conclusive, except as to one particular. Were the two kinds of foundation used, exactly alike as to the number of feet per pound? and was the base of the same thickness in each case?

SIZE OF SUPERS.

On page 556, in *Our Own Apiary*, a department, by the way, which is always intensely interesting, the question is raised, whether the T super should be adapted to an eight or ten frame hive. I am inclined to think I should answer "No." The 1-lb. section having become so generally used, settles the length of the super. The width must be settled by the number of sections to be used; and for convenience in handling, and other reasons, I would not think of any thing more than $12\frac{1}{4}$ inches inside; and it is possibly worth considering whether there might not be some advantage in having it less. So I should settle upon the size of the super somewhat independently of the size of the hive, and, if necessary, make the honey-board, or something else, act as an "adapter" between the two. My hives are ten-frame, although they rarely have ten frames in them. They are $17\frac{1}{4}$ inches wide outside, and $20\frac{1}{2}$ inches long (not the best size), and the supers are $3\frac{3}{8}$ inches narrower, and $1\frac{1}{8}$ inches shorter than the hives. To make one fit the other, a stick $\frac{3}{4}$ inches square, and the same length as the top-bar of a brood-frame, is placed in the hive at the right place, to support one side of the super, or honey-board, rather; then a little stick laid across the back end covers partly or wholly the space left by the difference in length. When a super is put on, there may be anywhere from 4 to 8 frames in the hive; and if less than 8 there are not enough frames to be under the whole of the super. The best way is to fill out with dummies each side of the super, a close division-board shutting in a hive at the open side. So you see I consider the size of the hive and the size of the super as two almost independent things.

PIPING OF QUEENS.

I don't want to get mixed up with Doolittle and the other D's in a discussion, for I don't want to get worsted; but I can at least ask a few questions. Do we do well to throw away the old word "quabk"? Doolittle uses the word "pipe," or "peep," indiscriminately, as applying to the noise made by a queen, whether in or out of the cell. I wish I had a hive with young queens right by me, that I could describe accurately the noises made; but I will tell as nearly as I can what comes up from memory, and Doolittle can bring me up with a sharp turn if I get it wrong. If I am not mistaken, the old-fashioned way was to say the free queen was "piping," and that those in the cells were "quabking." In piping, the queen emits several sharp tones, the first one quite prolonged, followed by shorter ones; then the queen or queens in the cells quabk (pronounced the same as "quack," only giving a the broad sound as in *fall*), and this quabk is not merely a muffled peep, as the quabk consists of several tones of equal duration, quite short, as

compared with the piping, and of lower or coarser pitch. So if we admit this distinction in terms, would not the truth be somewhat like this: A single queen is heard piping, and is replied to, generally, before she has finished piping, by several queens quabking in their cells?

REMOVING SECTIONS.

Friend Aaron Brogler (page 510), when sections are well glued in supers, gently bearing down upon them with a small light lever will have no immediate effect; it would take a pressure of perhaps 50 to 250 pounds' weight to immediately start them, if applied over the whole surface. Striking at one corner readily starts it at that point, and then it is easy to follow up your vantage ground. If you are willing to take time enough, the gentle pressure may answer; for a superful of sections that will resist a weight of 500 pounds may yield to a weight of ten pounds if continued *long enough*, always supposing that the propolis is warm enough.

Thanks, friend Muth-Rasmussen, for your suggestion, page 544, as to getting the last section in the super. If the block of wood is too much in the way, as I think it might be, then I would have two separate pieces of tin, each bent something like this:



Emma sometimes uses two case-knives, but I think this might be better.

I agree with you, friend Root, as to the "too much machinery;" and in general nothing is needed but a little care and patience to get in the last section; but now and then you come to a refractory one that just *won't* go in, and for such cases you'd be glad to have some "machinery" ready to lay your hands upon.

C. C. MILLER.

Marengo, Ill., July 23, 1887.

In answer to your questions, friend Miller, I will say that our flat-bottom thin foundation runs from 12 to 15 feet to the pound, and our natural base about 10 feet to the pound. The base in the latter is not quite so thin. However, the difference in weight of the two makes is almost wholly made up in side wall. With these facts in view, perhaps my experiments, as related on p. 517, would be less positive. At any rate, I think we can be sure of this much: The bees always remodel the flat-bottom base before they make any use of it. Necessarily, I infer, they must expend more labor. That the bees did manifest an aversion to the one and a preference for the other in the same super, was clearly evident; though, as before remarked, the difference in weight per foot, as well as the peculiarity of the honey-flow, might have affected the result. We should be glad to hear from others who have tested the flat-bottomed foundation.—You say you would not have the inside width of a super more than $12\frac{1}{2}$ inch. As we have made them this season, our super is $13\frac{1}{2}$ inches, inside width. We can alter it to $12\frac{1}{2}$ inches, inside

width, with a very little change in the honey-board, and yet not increase the cost of either. As Dr. Miller has freely expressed himself, what think the rest of you? Are the advantages such as to warrant the change in the super?

THE QUEEN AS RULER.

DOES SHE GIVE THE SIGNAL FOR SWARMING?

WHILE reading R. B. Robbins' letter in GLEANINGS for July 15th, regarding the piping of queens previous to swarming, I was reminded of my own experience in this line.

A year or two ago I was standing by a chaff hive containing quite a strong colony of Italian bees, preparing to look through the colony. I had taken the cover off; and before I lifted the oil-cloth mat off the frames I heard the clear, distinct piping, or call, of the queen. She gave three or four loud calls—different from the *teeting* of young queens. Almost instantly the bees on the outside of the hive, and on the alighting-board, started with a rush for the inside of the hive, and in a very short time every bee was in the hive. I suspected what was coming, so I put the cover on the hive and waited for the next move. I soon heard another call from the queen, but not just like the other, or first call. Before I could count ten, out poured the bees in a torrent. The swarm was large, and I soon had it in a new hive. I then looked through the hive whence this swarm came, and found several queen-cells but no queen. Two days after, the young queen hatched out.

This is the second time I have heard the piping of the queen just before the swarm issued. The first time, the bees were in a hive where I could not examine the condition of the bees; but as soon as I heard the call of the queen, and saw the bees rush into the hive, I went to the house for help, and a hive for the coming swarm. When I got back the bees were out, and beginning to cluster. Whether the queen *always* calls this way before a swarm comes out, I do not know; but I have noticed many times that the bees lying out always go into the hive before the swarm comes out, and go in as though in response to some call or signal, to fill themselves with honey, I suppose. Excepting the times noted I have not been near enough to hear the queen, so I do not know about her piping; but I do know that I heard her call in both cases above stated.

Bees here are in an almost starving condition. Some colonies have less than a pound of honey. All of my queens are laying, as in springtime. I fear I shall have to feed or let them starve. I will kill them, before the latter shall happen.

Moweaqua, Ill., July 20, 1887.

D. C. AYARS.

OUR P. BENSON LETTER.

P. BENSON'S GRATE BEE-PAPER.

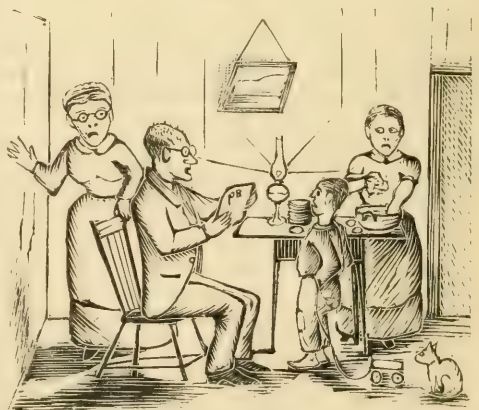
I AM gittin reddey to publish a noo paper. It will be devoted to bees, bee-keepers, aparrists, apaculcher, bee-keepin and kindered subjej. Terms invariablie in advance. It will be weakly. It will be entighteled The American Gleanings Magazeen and Advance Gide Bee Jirnal of Apaculcher.

It is with reluctants that I undergo this noo enterprize, but I feel it my dooty to yield to the noomerous solissyashens of my multitoodiness friends, whitich thay need a paper whitich will emboddy in a suksinked form the burning thots of I far advanst in the most advanst stages of apaculcher, whitich I am him, P. Benson, A. B. S., or to give my fool tightel, Apiculturistical Bee-Keepin Sighentist.

Sum bee-papers is published alreddy, but the edditors is defishent. For edditor it wants a noo man whitich will go at the root of things and ally to himself evry aid to clime the hill of sighents, I whitich will grasp the rudder with a firm hand, and soar grandly aloft in the grate possibilities of the futer of bee culcher, soar till the blew volted skies sirrounded his ambrosshell locks with vesper chimes of majestick sighlents, and all down the ages to the remotest end of time shall go resoundin the name of that lofty giant of intelleck, P. Benson, A. B. S., whitich is the responsive edditor of that well noan and popular paper herein described and set 4th as aforesaid in this prospectus.

This valooable paper will be an indispensable adjunk to evry aperry and bee-keeper. It will be printed on the 1st of the weak and paper of pinkish culler. It will print the highest prices for hunney whitich will stiffen the markets. It will print reparts of bigger crops of hunny than enny paper in existents. It will print loer prices for hunny than enny paper, whitich will make hunny so cheap that evry buddy will eet it and thus increase the demand, whitich will increeze the price to the projuicer. It will print reparts of faillyures, and this will projuice the feelin that hunny is skerce and evry buddy will want it and will be willing to pay enny price for it.

Subscribe for this grate paper now. The demand has bin alreddy so grate that the 1st number is eggstosed, but it will be give as premyum to them whitich sends in thair subscripshen befour Krismus. Send for this grate paper now. Evry buddy wants it and it will be impossible to supply $\frac{1}{2}$ the demand.



THE MODEL BE-PAPER.

The above seen is taken frum life and shows with what wrapped at10shun this paper is devoured by the entire family sircle on its weakly arrive.

Subscribe to wunst.

P. BENSON, A. B. S.,

Edditer and Proprieter.

THE QUEEN OF THE HOME.

HOW HER LABORS MAY BE LIGHTENED AND HER DUTIES BE MADE PLEASANTER.

FEW things that have ever appeared in GLEANINGS have interested me any more, Bro. Root, than the articles written by yourself and our good friends Prof. Cook and T. B. Terry, looking to the betterment of our homes, and especially to making lighter work and pleasanter life for the "queens of our homes." I am sure those writings will bear good fruit in many homes. I have studied much upon this matter, and I must confess yet to great ignorance. It is much easier to see what is wrong than to tell how to right it. I believe there are thousands of homes where a Henry Bergh is needed to arrest husbands for cruelty to—wives, where the husbands suppose they are doing about as well as good husbands ought, and if their eyes were opened they might do very differently. I am judging only by myself. Add to this ignorance a confirmed habit of carelessness on the part of husbands, and it's no wonder that wives feel jaded and discouraged. The fact is, that some relics of barbarism still remain, and we are not so far removed from the savage who looks upon his wife as his slave, no drudgery too great for her, if it ministers to his pleasure in the slightest degree.

We read with complacent approval the advice of those who tell the good wives how to welcome the husband home where every thing is bright and cheerful, the "snow-white cloth" is laid, and all that, the "neat ribbon at the throat," etc. Now, there's some sense in that, and a good deal of nonsense. The implied thought seems to be, that, under all circumstances, every thing in the way of ease and comfort for the wife must be set aside, and her gracious lord and master is to accept it as a dog snaps up a piece of meat, and then growls for more. There are plenty of times when a woman's work is in such shape that it is nothing short of cruelty for her to be obliged to straighten up every thing in apple-pie order, and get up a good dinner at the regular time, and in fine style. It is not a very unusual thing to hear something like this: "Mr. A. is not going to be home to dinner to-day, so we needn't make any fuss about it; just have a picked-up dinner. That will give us a chance to get along so much better with our work when we are so hurried." In this case the four or five members of the family are well suited with the dinner involving less work; but if the sixth member is present, in the person of Mr. A., the master of the house, an entire change of programme must be made, and the wife and mother lies down at night aching at every joint, with the somewhat doubtful compensation of feeling that Mr. A. has had his regular dinner.

A great many of our women have a pretty hard time of it at best, with work that seems to me more or less unnecessary; but it is a difficult thing to see the way out of it clearly. But if men had their eyes open they could many times help to make labor lighter. In the case mentioned above, if the husband should happen to notice that work about the house was somewhat pressing, he might say, "You're so busy to-day I don't believe I would make any elaborate preparation for dinner; just manage to make the least work about it possible;" and then after dinner he could say, and say it truthfully, if he felt as he ought, "Well, now, this is a

good dinner. I have really enjoyed it. Why can't you do this way oftener?"

It is not a very unusual thing in my own home to have meals that require very little labor. In the summer time it is more or less an absolute necessity, for the two ladies of the house, the two house-servants, and two of the field-hands in the apiary, are all one and the same pair. In the winter time, when they are particularly engaged at some sewing, some preparation for Christmas, or what not, and none of us feel that a very hearty supper is necessary, a waiter may be brought into the sitting-room, filled with all that may be needful, and perched upon the organ-stool, some milk or weak coffee heated on the open anthracite fire, and we all help ourselves in a very informal manner. This saves the trouble of starting a fire in the kitchen, setting the table, clearing off the table, and washing a lot of dishes. Now, my dear brother-reader, don't rush to the conclusion that because such things are done in my house, therefore the lady of the house is a very slovenly sort of housekeeper. I warmly resent any such insinuation; she's just as good as your wife, and takes great pleasure in a well-kept house. Moreover, she by no means deserves the credit of a state of affairs that renders it possible, on occasion, to make her work a little lighter. I want you to understand distinctly, that I arrogate to myself the credit by insisting at times, in a very peremptory manner, upon lightened labor, and condescending to show no disapprobation at any little move in that direction not suggested by myself. Neither do I want to make you understand that I'm a model husband. I'm not. I'm simply selfish, and can be happier myself, and get more work done, by having bright faces about me. A very little grumbling on my part, or showing by word or look that the full tale of what fashion, or what you may please to call it, exactly, would be made more pleasing to me, and it would be given ungrudgingly and without stint, at whatever sacrifice of health and strength. My brothers, very largely in our own hands lies the power to shorten or lengthen, to make bright or burdensome, the lives of the "queens of our homes."

Marengo, Ill.

C. C. MILLER.

Friend C. C., I agree with you exactly in your position to-day. Suppose two brothers were living together, and that they kept house, cooking for themselves, as often happens. Suppose, also, they should divide their duties so that one supplied the needful food. During hot weather, or during a time when they were greatly crowded with their duties, if they should see fit to decide between themselves to have occasionally a meal that required very little care or preparation, what would there be wrong about it? and wouldn't it be a Christian-like act for the brother who did not cook, to tell the other, under circumstances such as I have mentioned, that he would not mind having a simple pitcher of milk and a slice of bread for his supper, or, if the case might demand, even breakfast and dinner? It would simply be a brotherly act. Now, then: Ought not a man to be as self-sacrificing and thoughtful of his wife as of his brother? The question is really ridiculous. The queen of the home stands in a nearer relationship to the "lord of the home" than any other that can be mentioned. Just before marriage, we of the sterner sex are in

the habit of making little speeches something like the following: "My dear one, this broad universe can furnish no pleasure like the one of caring for you, waiting on you, being near you, and ministering to your wants and comforts so long as a kind Providence shall permit me to live and breathe." No doubt we didn't all of us use just exactly those words, but did we not think as well as say something that came pretty near it? Now, to come down from the honeymoon to something plain and practical, let me suggest to you how simple a meal may be occasionally partaken of, and, after all, one that suits me to a dot. It is a pitcher of cold milk and a bowl of cerealine. You probably won't consume the whole pitcher of milk (that is, unless you are a very big man with a very strong appetite), therefore the pitcher can be set back into the refrigerator or cellar, without any washing. The bowl and one spoon will comprise all the dishes to be washed for each individual. I don't quite understand it, but this cerealine is excellent food, without any cooking whatever. Pour the milk on it and let it stand two or three minutes, and it is ahead of any cold mush to eat in milk I ever came across, and I tell you I am very fond of cold mush and milk too. This cerealine is sold at nearly all the groceries, and costs only 16 cts. for a package of five pounds. Now, some of you may not fancy such a supper as this, even if I do. Oh, yes! I want to say, also, that it is tiptop to work on. I can go and work in the garden after such a supper as well, or better, than on any other I know of. My wife, however, sometimes feels sorry for me (or, at least, she says so, and she is always truthful), and so she gives me a dish of raspberries, huckleberries, or something of that sort, to sprinkle in. This makes the pie, you know, or fruit; and as they are sprinkled out of a pint basket right into the bowl of milk, even this addition does not make any more dishes to wash. If you have not the cerealine handy, you can substitute a slice of nice bread. Cerealine is, however, I believe, sold in almost every grocery in the United States at the price I have mentioned, or a little more.

MRS. HARRISON TALKS TO US ABOUT GASOLINE-STOVES.

ALSO A WORD IN REGARD TO CARPET-SWEEPERS, PORCHES, ETC.

MR. EDITOR:—I have been very much interested in what has been written with reference to saving women's work, and especially Prof. Cook's kitchen. I cast about to see how I could lighten labor, and took gasoline-stoves under consideration. Women who had used them spoke highly of them as saving from cleaning up soot, ashes, coal, kindlings, etc., and the labor of making fires. After examining many different kinds I purchased one which I thought had the most good points, and I call it my "hired girl." It is very obedient and satisfactory. I was afraid of it at first, both for myself and the "orphans;" but their curiosity was soon satisfied;

and as the fire is all put out by turning down the reservoir to fill it, I think it is safer than a kerosene-lamp. On cool days I make a fire in the coal-stove, and use it; and I find at night that I am a great deal more tired than when I use the gasoline. Bituminous coal costs, delivered, \$1.50 a ton, and gasoline 15 cts. per gallon. Early in the season, 13 cts. Dealers in stoves are also interested in its sale, and kept the price down until they had sold many stoves.

I also carpeted the kitchen. I tried this once before, but the dust from soft coal was such a nuisance that I took it up, but get along with comfort, using gasoline. If I were a poet I would sing its praises—such a relief from heat! One room does now where it took two before; and such a saving of steps while ironing! The ironing-board can be placed within reach of the irons.

I don't think any mother who does her own work should sport many porches, especially if they are near a driveway. No lady loves to see them dusty, and harboring spiders, etc.; and to avoid this she must constantly clean them. They should be indulged in only by those able to hire a man to take care of a horse, carriage, wash windows, walks, etc.

Carpet-sweepers lighten labor, but they do not fill the bill as a perfect sweeper. They do not sweep corners or near walls. If a room is thoroughly swept with a good brush broom once a week, and dampened meal be thrown upon the carpet, the sweeper can be used the rest of the time. It is very convenient to gather up clippings, ravelings, etc., and indispensable in a sick-room. Every woman should have one.

Bees barely make a living this season, owing to the severe drought last year and this; and I get fresh air in the hammock, in lieu of running the lawn-mower, hiving bees, taking off sections, etc.

Peoria, Ill., June 22.

MRS. L. HARRISON.

MORE KITCHEN CONVENIENCES.

WHAT CAN WE DO TO LIGHTEN THE HOUSEHOLD DUTIES?

FRIEND ROOT:—When farmers go to visit their friends they are apt to spend much of their time looking at the crops, or the stock or barns. This is well; but they ought also to examine the home, and its surroundings and equipments. Why shouldn't we be just as anxious to get suggestions as to how we could make our homes a little pleasanter, or a little more convenient for our wives and daughters to work in, as to learn how best to fix our barns, or take care of our crops? In fact, ought we not to take much better care of our dear ones than of our stock? But do all farmers do this? I fear not. Let me picture a case that I saw with my own eyes, and which has too many duplicates. The farmer showed me through a fine—yes, magnificent barn, with all the latest improvements and conveniences for the comfort of the stock. His horses were fat, and showed that they were never overworked. In the harness-room I noticed nets to keep the flies off from them when they were at work. When in the house I asked to see the kitchen. Were there screens on the windows and doors so his wife could work without being bothered with flies? No. Were there any of the numerous little conveniences that are found in the best kitchens nowadays? There were not. Did

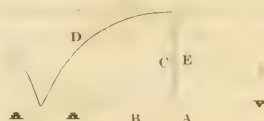
the good wife look as hearty and well kept as the fine horses in the barn? Not by a good deal. The poorest-kept stock on the farm was in the kitchen. I was telling of this at an institute a few months after, when a man in the audience said: "Do you not understand all that, Mr. Terry? If one of those horses should die from overwork and poor care, there would be \$200 dollars gone. If the wife should die, he could get another for nothing."

I think that was a pretty harsh judgment. I should rather say that such men, in their eagerness and strife to get ahead, have been thoughtless. They do not see these things as an outsider does. They have meant well, but have got a little off the track. I hope every farmer who takes GLEANINGS will eye his wife closely, and see if there are any grounds for saying she is not well kept. I hope he will go into the kitchen, in particular, and see if it is fully up to the times in conveniences and comforts; and then whenever he visits a friend I hope he will look the home over carefully. If there are any little improvements that he hasn't got, may he go home and plan to get them as fast as he can. If his friend's home is lacking in some little things that go to make the work lighter and pleasanter, he might quietly suggest them to him. Also, he might write to you for publication what he did or what he saw abroad that was valuable, and thus let his light shine to brighten homes, perchance, that he could never otherwise reach.

This reminds me of some things I saw in a kitchen away up in Evansville, Wis. When at an institute near there I talked to the farmers as much about improving their homes as their crops, so Mr. B. S. Hoxie, a well-known architect and builder, invited me to see his home. There was one thing that many a farmer's wife sorely needs, and that was a dumb-waiter, as they are called. I do not remember seeing any mention of one in GLEANINGS since I have read it. This waiter is simply a long box, say two feet square and six feet long, open on one of the sides, and with shelves in it. It is hung with weights and pulleys, so that it can be let down from the kitchen or pantry into the cellar, or drawn up, easily. The good wife, after a meal, can draw up the waiter and put on it every thing that needs to go to the cellar, and thus save herself many a weary step. A box of potatoes, the butter, lard, etc., can be kept on it so that she need not run down cellar very often. I have seen my wife go down cellar at least half a dozen times while getting a meal and clearing it away. I sometimes think she might plan to take more at once, but it is easier, perhaps, for me to think so than for her to do it. I had never heard of a dumb-waiter, or, at least, not so as to fully understand its value, when we built our house, so we did not get one put in. After having seen them in use in several homes we have decided to have one in our pantry soon. It is a very simple affair. It works just like a sash in a window-frame hung with weights and pulleys. The weights balance the weight of box and contents, so it will stand anywhere, up or down. The space into which the waiter comes may be inclosed, both above and below, with a door on one side, if it is desired. The cost need be but a few dollars. I saw one last winter in a dining-room, as there was no cellar under the kitchen. It was inclosed in a fancy manner, and looked like a little china closet. You may have one in your fine home, friend Root. If so, you would do a good deed to give some pictures of it,

so all could see that it is simple and not beyond their reach.

There were lots of other nice things in Mr. Hoxie's kitchen; but I will stop to speak of only one that was entirely new to me. It was the arrangement of flour-box and shelf for making up bread, etc. On one side of the kitchen I noticed a little shelf about one foot wide by two and a half long. The space beneath was inclosed, and there were two doors with their trimmings. I couldn't make out what it was for, so I asked. Friend Hoxie went to it and let down over the top a large leaf, or bread-board, that was hinged to the wall and fastened up, and which I had not noticed. When this was let down it was just the right height to make up bread on. When through, one had only to hook it up and it was put up out of the way, and the used side back. I was so interested in looking at this that I forgot the little doors below until my friend opened one, and there was the flour right where you could dip it on to your board easily and not get any on the floor. This was by all odds the neatest and best flour-box arrangement I ever saw. It is Mr. Hoxie's invention, and not patented, and he would be pleased to have every one use it. I give a cross-section view of the two boxes in the inclosed space



CROSS-SECTION OF FLOUR-BOXES—TOP VIEW.

under the little shelf. The shelf is held up by a board down to the floor at each end. The front and end of each box, B, C, are made of wood. The curved side, D, which has to be curved in order to open, you know, is made of tin. The hinges are at A. The box swings right around out. E shows the end-board that holds up the shelf. The dotted lines show bread-board down and one flour-box open. I have just thought that it would be nice to put sugar in the other box. Of course, these boxes want to fit exactly, so no dust can get in.

Mr. Hoxie has built a great many houses in Evansville—no, not houses, but homes. He has made it a life-study to give a man the most conveniences and comforts possible for the money. Of course, I greatly enjoyed visiting such a man's home.

T. B. TERRY.

Hudson, Ohio, July 16, 1887.

Friend T., we have no such dumb-waiter as you mention, in our house, but we have two of them in the factory. One connects the dining-room with the kitchen, and I don't know how we should get along without it. During dinner-time, the cooked food is sent right up to the waiters; and when dinner is over, the dishes and all surplus go right back down into the kitchen. We will try to give you a drawing of it in another number, including a description of some little device of our own to make it convenient. The other one carries the printed sheets from our large printing-press, upstairs to the folding-room; and when "paper day" comes, and especially if it should

be a little late, I tell you this dumb-waiter has to do considerable business. They are indeed very great helps. If the whole apparatus could be made by machinery, so as to be shipped to customers, with the necessary castings, weights, cords, etc., it would be, very likely, the cheapest way they could be got up. We will try to look into the matter a little. In using ours we always have an attendant above and one below. Ours are arranged to work so smoothly we send up and down, milk, eggs, and every thing required; but the waiter moves so steadily that nothing is ever slopped or broken by starting or stopping.

FAILURE OF THE HONEY CROP.

MRS. AXTELL WRITES IN REGARD TO HONEY-DEW, FERTILE WORKERS, SUGAR FEEDING, ETC.

MR. AXTELL and I have failed in securing much of a honey crop this summer, on account of the drought. Bees were in good condition the first part of June; and if we could have had one or two more good showers of rain, by the first of June, we probably should have had our usual amount. However, the bees got enough to crowd the brood-nest, so they are provided for. Had our hives only a small brood-nest we should surely have had to feed sugar before our bees could gather freely again. Pastures are brown, and almost dried up bare.

While Mr. Axtell was back on the farm one day this week, near a thrifty osage-orange hedge, he heard a humming of bees. He lifted the limbs of the hedge, and peeped in to see what it was that called the bees there. He saw the leaves in places covered with a sweet, sticky substance. It was not over all the leaves, but more in spots. Just above the leaves that had the honey-like substance were thousands, I suppose, of one kind of aphides. They were white; and on shaking the limb they would jump like grasshoppers, unlike any I ever saw before. There was so much white fuzz, or dust, upon them they made the leaves or limbs they clustered on white. I do not think there were enough to cause bees to store any in sections, as they seem to have entirely left off storing surplus; but they were very lively, flying as if after honey. It seemed to me a wise providence to thus in time of drought provide for even the little bee.

FOUL BROOD, AND SUGGESTIONS REGARDING.

We sympathize with you in your being so unfortunate as to have foul brood in your apiary. As your colonies seem to recover, and you appear at times to get rid of it, I can not but think there is somewhere in the vicinity of your bees some careless bee-keeper who has it. Perhaps he may be a farmer with a few hives who does not look after his bees, and occasionally a colony has it so bad that it dies, and leaves the honey; then, of course, the neighboring bees would come in for their share and thus spread it. It seems to me I would try feeding phenolated syrup, and keep it up for a while—enough to reach a little to all the bees in the neighborhood, if you should have any reason to fear the above dangers mentioned were possible.

LAYING QUEENS FOR SWARMING TIME.

Making nuclei and rearing young queens before swarming time, so the queens are all ready for use, is a nice thing. It is very easy then to manage an

apiary, when one has plenty of young queens already in nuclei awaiting swarms. It is entirely another thing when one has all the bees he desires, to find his honey harvest suddenly cut off with no swarms. It was precisely in this situation that we found ourselves this season. We have accordingly decided that, in future, we shall be very careful about raising queens and dividing up colonies into nuclei, unless we are pretty sure to have a honey-harvest. If the spring were quite wet, and the clover abundant, I suppose we should be pretty certain of a honey harvest, which always brings with it more or less swarming.

This time I do not mind having made so many nuclei as I would if I had broken up good colonies. As it was, I used only the colonies that had failing and rejected queens; and this leads me to mention that Mr. Axtell and I much prefer home-bred queens; that is, queens raised in our own apiaries. Queens that have come to us through the mails are invariably short-lived, and seldom build up into choice colonies. We think this is because of the confinement, and perhaps of too much shaking by the postmasters. We do, however, approve of getting a queen to raise queens from occasionally.

In the spring we had several queenless colonies which I purposed to build up strong. Although I gave them young bees I could not get them to start cells like bees that had not been queenless long. I never had tried queenless colonies before; that is, queenless for so long a time as those may have been. Possibly the spring had something to do with it, as it had been unusually dry.

FERTILE WORKERS.

We found one colony that had fertile workers in the spring. I gave them a comb of brood with adhering bees, but the fertile workers went ahead laying all the same; then we gave them a comb of larvæ, eggs, and a queen-cell with adhering bees. This time they destroyed the cell, and the fertile workers still held sway. It being a fair colony, and I had given it brood so much that I disliked to waste the bees, I took them to a hive with a rejected queen, which I meant to replace soon. I brushed the bees of the fertile-worker colony all down at a distance in front, so the young bees and the fertile workers would crawl into that hive. The young bees would be received, but the fertile workers were killed, and the old bees that were not fertile workers flew back home, and that was the last of the fertile workers in that hive. In a few days I opened the hive and found nice cells started upon the combs I had given them. They had a young queen in a few days.

SUGAR FEEDING.

Mr. Axtell and I think bee-keepers ought, if possible, to entirely discard feeding sugar to bees, because of the growing distrust there is in the minds of people about sugared honey. Only a few weeks ago we received a letter from an intelligent Christian man in Chicago, wishing our word for it that our honey was strictly pure. He wanted to be sure of it before he recommended it to others, as he was expecting to handle our honey this year. We even felt sorry to tell him we used small starters of comb foundation, and sent him a piece about as large as we generally use for a section, as we use only small starters. He wrote as if people thought there was a great deal of adulterated honey. We wrote him as well as we could, telling him we did not think the comb honey offered on the market was ever manu-

factured; and as for the honey in the comb being adulterated, we thought that was never done to any amount; that some bee-keepers did feed their bees refined sugar for wintering, but that, probably, was all consumed, and but the merest trifle could ever find its way, if any, into the section honey; that we had not for several years fed one pound of sugar or other sweets beside their own honey gathered from the flowers.

We believe if all bee-keepers could constantly affirm, that they feed no sweets whatever, but were always careful to let bees have more than enough of honey for their sustenance the year round, the adulterated and sugared honey we so often read of would soon die out.

If at any time we fail to keep enough for them to live on, and are obliged to feed, let us do so, but keep silent about it and not report it to the world for everybody to read, but see to it that we never need do so again. Let us also use as little foundation in section honey as possible, and say less about that.

MRS. L. C. ANTELL.

Roseville, Ill., July 1, 1887.

I agree with all you say, my good friend, but I suppose you know this same matter of foul brood makes it desirable, many times, to feed sugar instead of honey. If there is foul brood in your apiary, you do not want to feed your own honey, with the chance of starting the disease again, when you can purchase sugar cheaper than can not start it; and if you are obliged to purchase something to feed, as many bee-keepers are obliged to do such a season as the present one, there is more or less danger in purchasing honey. I know it sounds bad to talk about bee-keepers buying sugar by the barrel, to feed their bees; and I agree with you that it behooves us to say as little about it as possible; that is, do not needlessly introduce the subject. If, however, anybody inquires about it, tell them the plain truth, that you do feed your bees sugar in preparing them for winter, during poor seasons, but that you take such pains that it is absolutely certain that what you sell as honey is by no possibility sugar syrup.

CARPETS VS. BARE FLOORS, AGAIN.

A PAINTED CARPET.

IN GLEANINGS for June 15, I noticed particularly the article, "Carpets vs. Bare Floors;" and if you will allow me, I should like to say a few words on the subject of floors.

A few years ago we had to spend about half of our working time in scrubbing, sweeping, and dusting; and as I found my strength yearly decreasing, and I could not get half as much time as was really needed for other things, I made up my mind there *must* be a change made in some way, and this is the way it was accomplished: In the first place, I covered my kitchen table with oil cloth (and that alone was a paying investment, for it has saved me many a backache); then I carried an old brussels carpet to an empty room in the tower; and after stretching and tacking it down wrong side up, I gave it three coats of good light ochre paint, and left it there four weeks to get thoroughly dry and hard, after which I tacked it down on the kitchen floor. I find it makes the nicest kind of a floor

covering for a kitchen, as it is so easily cleaned, and it is so durable. It has been in constant wear over three years, and the paint has not worn through anywhere yet.

I next turned my attention to the dining-room. It was a room that we used constantly, so that it not only required a great deal of sweeping and dusting, but it cost us quite a sum to keep it decently carpeted. We first painted the floor, but we did not like it very well, for the flooring was poor, and paint did not entirely hide its deficiencies; so a year ago we had a new floor laid down over the old one. It was of well-seasoned ash boards, about three inches wide; and before laying we stained half of them blackwalnut color, and after it was down we soaked it well with a mixture of oil, turpentine, and beeswax. We think now it is the prettiest room in the house, and it is certainly the cleanest, for we have scarcely any dust. I bought a few remnants of brussels carpet for fifty cents a yard, and put around in the parts of the room used most; these are light and easy to shake, and are pretty too. So, now, as the walls are painted, and the butternut woodwork varnished, housecleaning in that part of the house does not appall me.

MRS. C. B. HAYWOOD.

Ypsilanti, Mich., June 21, 1887.

BULL'S DEVICE TO REMOVE SECTIONS FROM SUPERS.

ITS MODE OF CONSTRUCTION.

IN compliance with the request of some parties who have written to me for a more detailed description of my machine for removing sections from supers, mentioned on page 342, GLEANINGS for May 1st, I have promised that, if the editor permits, I would endeavor to give the desired information through his columns, so that one explanation might answer for all who wish to know about it. Although the machine is not intricate, yet I think it can be more easily explained and better understood by the use of illustrations, so I will endeavor to give a rude sketch, or outline, of the different parts, to assist in conveying, if possible, a clear idea of its structure and workings.

The frame of the machine is composed of four pieces—two end-pieces, one bed-piece, and one top-beam, all of which should be made of 1½-inch plank, after being dressed on both sides. Pine or basswood will do. The dimensions may be varied to suit circumstances. If you wish to stand up to work, make it high enough to be convenient for that purpose; if you prefer to sit down when emptying supers, make the end-pieces shorter.

Fig. 1 is a diagram of one of the end-pieces, which should be 15 in. wide at the lower end, and 6 in. wide above the bed-piece. The distance between the bed-piece and top-beam is 22 in., the lower part to be of such length as will give the desired height to the bearing-



FIG. 1.*

* The diagrams are not made exactly to the scale; the reader will, therefore, get his exact dimensions from the context. Editor.

board, which is to rest on the bed-piece; a, a, a, are mortises to receive tenons on the bed-piece and top-beam; b, b, rabber, $\frac{1}{4}$ in. deep, whole width of the end-piece, to form a seat for the ends of the bed-piece and top-beam, to keep them from warping out of shape, and to give firmness to the frame; c, c, are cleats fastened to the end-pieces with screws, to serve as guides to hold the follower in its proper place when it is pressed upon the super; d is a round hole to receive the gudgeon of the cylinder. This hole ought not to be made quite through to the outside.

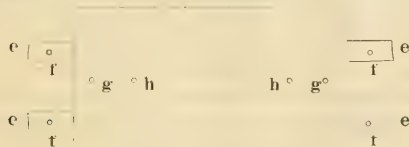


FIG. 2.

The diagram above shows the bed-piece, and is represented by Y in Fig. 6. It is $1\frac{3}{4}$ inches thick, $24\frac{1}{2}$ long, and 15 wide; e, e, e, are tenons to correspond with the mortises a, a, in Fig. 1, and reach through far enough to receive a pin through the holes f, etc., outside of the end-pieces; g, g, are holes for ropes to pass through, and connect the follower with the cylinder; h, h, are dowel-pins to hold the bearing-board in place.

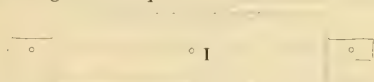


FIG. 3.

Fig. 3 is the top-beam, $24\frac{1}{2}$ inches long, 6 wide, and corresponds to U in Fig. 6. The hole in the center, at I, is to allow the passage of a rope, S, in Fig. 6, to connect the follower with the spring, to draw it upward out of the way when placing the supers upon the bearing-board. The follower is composed of three pieces—one sliding-beam and two presser-feet.

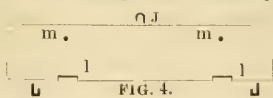


FIG. 4.

Fig. 4 represents the sliding-beam. It should be made of hard wood, 24 in. long, 6 in. wide, and one inch thick. J is a staple or hook to receive the rope (S, Fig. 6) attached to the spring above; the small hooks beneath are for the ropes or straps to connect with the cylinder R, Fig. 6; l, l, are gains, or notches, $\frac{1}{2}$ inch deep, to form a seat for the presser-feet, and to hold them in place; m, m, are holes for pins or bolts to hold the presser-feet fast to the sliding-beam.

Fig. 5, corresponding to Q, Fig. 6, shows the form of the presser-feet. These should be made of some kind of hard wood, 10 inches wide, 11 inches high, and $\frac{3}{4}$ of an inch thick. A mortise is made at the upper end, 5 inches deep, one inch wide, and open at the top, as shown. A hole is bored through where the dotted line is seen in the notch. These presser-feet stand at right angles to the sliding-beam, the notch l, Fig. 4, fitting into the notch, or shoulder, seen in Fig. 5. A bolt or pin passing through the hole indicated by the dotted line, holds the presser-feet securely to the sliding-beam; and this constitutes the follower. When the

machine is put together, the ends of the sliding-beam are placed between the guides, c, c, Fig. 1, which form grooves in which it slides up and down when in use.

The cylinder, indicated by R, Fig. 6, may be made of a piece of solid wood 24 inches long and 6 inches in diameter. It should be turned off very true and round, of equal size at both ends, having an axis, or gudgeon, at each end, to fit into the hole d, Fig. 1.

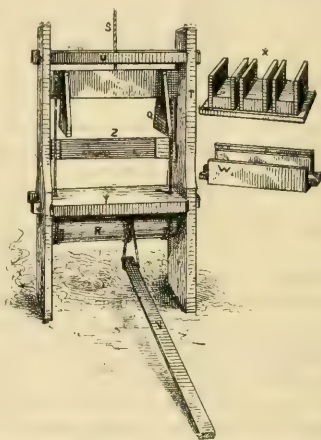


FIG. 6.—BULL'S MACHINE COMPLETE, FOR EMPTYING T SUPERS.

The front side of this cylinder must be in a perpendicular line with the center of the sliding-beam of the follower. Two ropes (a piece of clothes-line will do) are attached to hooks on sliding-beam, Fig. 4. They then pass down through the bed-piece at g, g, Fig. 2, and fasten to the cylinder near each end, as shown in Fig. 6. A third rope is fastened to the cylinder at or near the center, wound once or more around it, as shown. A loop is made in the end to receive the treadle, V, Fig. 6. Any suitable stick 6 or 8 feet long will answer for the treadle. Insert one end into the loop in the rope; let the other end rest on the floor, back of the operator. When the treadle is pressed downward it will cause the cylinder to revolve in such a manner as to wind up the ropes which are attached to the follower, and draw it downward with equal force at both ends. It can not draw one end any faster than the other. The guides hold the follower from canting sidewise, thus obviating all danger of twisting the super and breaking the sections or comb.

TO MAKE THE BEARING-BOARD FOR THE T SUPER.

Take four pieces, $1\frac{1}{4} \times 3\frac{3}{4} \times 11\frac{1}{4}$ inches. Nail on to two sides of each of those blocks a piece of board $\frac{1}{4}$ inch thick, $4\frac{1}{2}$ long, and $11\frac{1}{4}$ wide, thus forming a sort of box without ends, $11\frac{1}{4}$ inches long, $4\frac{1}{2}$ deep, and $3\frac{3}{4}$ wide, outside measure. These are for the sections to bear upon when the super is being removed, and so constructed that all the pressure will be near the corner of the section, so as not to spring the bottom-bar and break the comb.

Those blocks are all set upon a bottom-board, and spaced off to correspond with the rows of sections in supers, being careful to have the end of each block in line with all the others. When properly placed they should be fastened with screws to the board. A little more than $\frac{1}{2}$ inch of space is allowed between these blocks for the passage of the T tins in the supers. When completed, the bearing-

board will present the appearance of X. Fig. 6, only there should be four divisions instead of three, as shown.

TO MAKE A BEARING-BOARD FOR WIDE FRAMES.

Take a piece of plank $2 \times 3\frac{1}{2}$, and 19 inches long. Cut two pieces of boards 17 inches wide, 4 long, and $\frac{1}{4}$ thick. Nail these on to the edges of the plank, having the grain of the timber in the boards run crosswise of the grain in the other, which will give much greater strength to the board. When nailing together, allow the plank, which forms the bottom, to extend one inch beyond the side-boards at both ends, as shown at W, Fig. 6. This forms a sort of box with open ends, 2 inches deep inside, 17 inches long, and $4\frac{1}{2}$ wide, outside measure, which is a little scant the inside dimensions of the wide frame. It is now ready for use, except that each bearing-board should have two dowel-pins in the bottom, to fit into the holes h, h, in bed-piece, Fig. 2, to prevent it from moving out of its place when in use. Great care should be exercised to get those dowel-pins in the right place; and perhaps the surest way to do that would be to set the bearing-board on to the bed-piece, place a super on it, bring the follower down to the super, to see if they meet just right; then pass the point of a bit up through the bed-piece and bore into the bearing-board, being careful not to let it move while doing this, and it can not be far out of the way. The dowel-pins should be driven tight into the bearing-board, but fit loosely in the bed-piece, so as to be readily removable.

To remove sections from wide frames, the frame with sections must be laid down upon the bearing-board flatwise, with the separator on the under side. The presser-feet of the follower bear upon the ends of the wide frame, which slips down outside of the bearings; and the separator goes down inside between them, and the sections will be left free and clear, resting on top of the bearings. The operation is performed in much less time than it takes me to describe it.

The process of emptying the T supers is also very simple. Set the super upon the bearing-board; place one foot upon the treadle, and bear down. If every thing is in proper order, the sections will all be out of the super before you hardly realize what is being done. To insure success, every thing should be made with some degree of accuracy.

JOSHUA BULL.

Seymour, Outag. Co., Wis., May 24, 1887.

THE NATIONAL BEE-KEEPERS' UNION.

WHAT IT IS, AND WHAT IT HAS DONE FOR THE BEE-KEEPER.

WE are glad to note, that the National Bee-Keepers' Union has fully demonstrated its usefulness and its ability to defend the rights of its patrons. Through this medium of strength the bee-keeper has more than once been enabled to accomplish what he could not have done single-handed. While we do not favor trades-unions in general, we must say that the Bee-Keepers' Union, under the present efficient management, has done good work for the cause it represents, and that, too, without the evil results which have been so characteristic of other trades-unions. It

is with pleasure, therefore, that we make the following extracts from the Second Annual Report:

To review the work of the National Bee-Keepers' Union at the end of the second year is a very pleasing duty, for we do not discover any thing which could have been done more satisfactorily—the results having been all that could be desired.

THE UNION VICTORIOUS EVERY TIME!

In all the attacks against the pursuit of bee-keeping, which the National Bee-Keepers' Union has deemed it expedient to vindicate, it has scored a victory! What no individual apiarist could have achieved single-handed, it has satisfactorily accomplished in a short time.

In the face of this showing, it is strange that any bee-keeper should hesitate to become a member of this organization. It ought to have thousands of members where it now has only hundreds. It is to the interest of every apiarist to become a member. Nay, it is not only that, but it is a duty, which, if neglected, will operate to his or her disadvantage. As the Union will defend only its members, who became such before any lawsuits were commenced against them—all should take time by the forelock, and join the Union at once!

MAILING QUEEN-BEES AND ATTENDING WORKERS.

The first thing which demanded the attention of the Union during the past year was the action of the postmaster at Griffin, Ga., who refused to receive a queen-bee in the mails, because of the attending workers, the postal regulations permitting only queen-bees in the mails—not drones or workers!

The Manager of the Union, Prof. Cook (Vice-President), and the Hon. Edwin Willits, each made an appeal to the Postoffice Department at Washington to have his action overruled. It was only a technicality; but as necessary attendants were essential when mailing queen-bees, it was a vital point to apiarists.

The General Superintendent of the Railway Mail Service ordered the regulations to be revised so as to read, "Queen-bees with necessary attendants," and so advised the postmaster in Georgia, the Manager of the Union, and others. Since that time we have heard no complaint on that score.

SENDING QUEENS TO CANADA.

Complaint was made that queen-bees sent to Canada had been stopped at Suspension Bridge. This was referred by the Manager of the Union to the Superintendent of Foreign Mails, and that difficulty was promptly removed. It was occasioned by the officiousness of the postmaster at Suspension Bridge, N. Y., and he was notified to "let the bees pass." So ended that trouble.

CALIFORNIA FRUIT-BEES TROUBLE.

The Bohn case, mentioned in my last Report, was appealed to the Superior Court. The decision there given was on technicalities, and practically ended the difficulties. The expenses of the suit and appeal amounted to \$384.50; of this the Union has paid one-half and Mr. Bohn the other half. In this case the resistance of the Bee-Keepers' Union was too much for the fruit-growers—and that trouble which was proclaimed by a Nebraska apiarist to be too much for the Union to compete with is now all conquered, the raisin-growers admitting that they were mistaken.

Foolish warfare against bees seems to be the rage! The idea that fruit suffers because of the presence of bees is simply ridiculous. The good they do in fertilizing the fruit-trees far outweighs any possible evil that may follow their presence.

REMOVAL OF BEES FROM CITIES AND VILLAGES.

M. Darling, of Waterbury, Conn., was sued for \$500 damages by a neighbor, and to compel the removal of his bees. The case was instigated by malice and jealousy, and was dismissed as soon as it was discovered that he was backed up by the National Bee-Keepers' Union. The expenses were \$50, of which the Union paid one-half.

S. W. Rich, of Hobart, N. Y., was sued by a jealous and disagreeable neighbor for \$1500 damages, and also to compel him to remove his apiary outside the city limits. This suit is defended by the Union, and is as yet undecided.

C. C. Richardson, a gardener, was sued for keeping honey-bees on his land in Tipton, Ind., alleging that they were a nuisance. This was also de-

fended by the Union, and, as a result, it was dismissed by the court. The costs were \$20; one-half of it was paid by the Union. This is the case which was so badly misrepresented at the Indianapolis convention by an officious neighbor, and it is with much satisfaction that I am now able to say that the Union was too much for the enemies of the pursuit of bee-keeping.

The city council of Fort Wayne, Ind., passed an ordinance against keeping bees within the city limits. If enforced it would practically wipe out the pursuit of bee-keeping there. Such a pressure was brought to bear by the bee-keepers, backed up by the Union, that the ordinance is a dead letter, and it is expected that it will soon be repealed, if it has not already been done.

In Arkadelphia, Ark., the City Council ordered Z. A. Clark to remove his bees from within the city limits within 30 days. Major J. L. Witherspoon, ex-Attorney General of Arkansas (who stands at the head of the Bar of the State), was employed to attend to the matter on behalf of the bees. The National Bee-Keepers' Union backs up Mr. Z. A. Clark to fight the case on its merits.

The thirty days have expired, and the bees are still there. Public opinion is strong against their removal, and the newspapers are teeming with ridicule of the order to remove them.

The Union will stand by Mr. Clark in this matter, and see it through, for it would be very detrimental to the pursuit to allow a decision against bee-keeping to be put upon record on the plea of its being a nuisance.

PROPOSED LEGISLATION IN MICHIGAN AGAINST BEE-KEEPING.

The McCormick bill introduced in the Legislature, "intended to wipe apiculture out of Michigan," as Prof. Cook stated it, raised such a buzzing about his ears that it was tabled on his own motion, and there died. The President of the Union (Mr. Heddon), as well as Vice-President Cook and the General Manager, all labored with Mr. McCormick to bring about the before-mentioned result.

Here we have another result of the benefits to be derived from organization and combined effort. The members of the Bee-Keepers' Union have many triumphs to feel proud over, and this adds another laurel.

FINANCIAL STATEMENT FOR THE TWO YEARS,

From July 1, 1885, to June 30, 1887.

From 620 memberships at \$1.25 each	\$775.00
Paid S. I. Freeborn's suit.....	\$131.00
Paid G. Bohn's suit.....	192.25
Paid M. Darling's suit.....	25.00
Paid C. C. Richardson's suit.....	10.00
Printing, stamps, stationery, etc.....	192.50
Defense Fund—Cr.....	\$261.25
Defense Fund—Dr.....	37.00

Balance on hand July 1, 1887.....\$224.25

I estimate that the amount remaining in the treasury will about cover the expense of the several suits still before the courts and in an unfinished state.

THE ELECTION OF OFFICERS.

It now becomes my duty under the Constitution to call for \$1.25 for the coming year (assessment \$1.00, and dues 25 cents) from each member. I therefore inclose a blank to be used for that purpose, and also a voting-blank. Fill up all the blanks, and send to the manager, with a postal note or money order for \$1.25. It must be sent by Aug. 1, 1887, or the vote will be lost.

CONCLUDING REMARKS.

I now submit my second annual report, with the hope that it will meet with the approbation of every member. If I have failed in any particular to act for the general interest of the pursuit of bee-keeping, it has been unintentional—that having been my only aim. I am now both ready and willing to transfer the office to my successor as soon as such is elected. Fraternally, THOMAS G. NEWMAN, General Manager.

Every bee-keeper having any interests at stake, who would secure the benefits of the Union, ought surely to become a member. Remember, "it will defend only its members who became such before any lawsuits were commenced against them."

MISHAPS IN INTRODUCING QUEENS.

ALSO SOMETHING ABOUT BEING POSITIVE, WHEN YOU MAY BE MISTAKEN.

I PRESUME that every one who rears queens for sale has had more or less complaint that the queen sent was pure black with no Italian blood about her; and this oftentimes happens when the queen-breeder has no blacks in his apiary, or none that he knows of in the vicinity. In past years there have been some unkind words, and perhaps some unkind feelings, in regard to this very matter; and to illustrate how easy it is to be mistaken we give the following from a friend to whom we sent a queen May 16. A little over a month afterward, you will notice, we received the following letter:

Friend Root:

I must say that the untested queen you sent me in May last was a black queen instead of an Italian; and if you don't believe it, you send me an untested queen at your expense, and I will send this one to you, and you can see for yourself, for I know, for I have tried her. I think you ought to make some amendment on her; if not, I think I will send to some other place hereafter. P. J. LONG.

Selbyville, Del., June 25, 1887.

We replied, stating that we thought it impossible that the queen he received had no Italian blood about her at all, and suggested that the queen we sent him was lost, and that one already in the hive, or that got in by some outside mishap, was in her place. Some time after, we received the following apology and acknowledgment of his mistake:

I was mistaken about that queen, I suppose, but she is not in the stand that I put her in. There is a black one in there, but I have noticed all of the stands, and found in one of them some Italians, and I suppose she has left the stand that I put her in and got into another one, from the looks of the bees. There are about a fifth or sixth of them Italians, and I think that she is in there with the black queen, by the looks of the bees. I will beg to be excused for writing what I did to you, for I would not have done it for twice the worth of the queen, if I had known it; but by a black queen being in there I thought you perhaps had got hold of a black one instead of Italian, by not noticing close. I don't want you to think that I was trying to cheat you out of a queen, for I don't mean to do any thing of the kind, for I want to deal with my fellow-men fair and square, if I possibly can. I am glad to find her in another stand; and more so, as I hope you won't think hard of my writing what I did, for I thought I was right. P. J. LONG.

Selbyville, Del., July 3, 1887.

Friend L., we didn't think you were trying to cheat us, for it is not likely that even a bad man would undertake to get another queen in such a way; but we did think you were a little hasty and a little more positive than need be. When things of this kind come up, we all need to go slow, and to have much charity for our fellow-men—the kind of charity that thinketh no evil; and this is what I need every day and every hour.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Feb. 15.

CHAPTER XXXVII.

While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease.—GEN. 8: 22.

After writing the last chapter of my book I decided that I wanted a little more experience in several lines of the work before going further. The principal point I have been trying to get before my readers is, that those who are out of employment can find plenty to do close by their homes, and that they may, if they choose, also find happiness in doing it. My wife suggests, however, that inasmuch as people do not all have tastes alike, it is doubtless true that not many men find the enjoyment and happiness in market gardening that I do, and no doubt she is correct; but it seems to me that almost any individual who has been for some time without work, and especially if he has seen his family suffer for the necessities of life, may be pretty sure to enjoy that which gives him something to do. It is true, however, that one can not expect to attain the greatest success in any work where his heart is not in it.

The past six months has been an excellent time for every thing pertaining to the work I have been mapping out in the former pages of this book. The trouble about low prices has seemed to vanish—at least in the locality of Medina; and from the market reports I judge it is to a certain extent true throughout the country in general. Good products command excellent prices everywhere, and I have not heard of a glut from stagnation in any line of produce in the way of vegetables or small fruits. Even the friends in the South, away down in Florida, seem to be getting satisfactory prices for almost all they have to sell. The greatest drawback, or hindrance, to the matter here, seems to be in being right up to the market, in crowding every product ahead as fast as it can go—that is, in getting these things ready just about the time people begin to want them. Last spring was not nearly as favorable here as it has been in former years for early gardening. Severe freezes came so much later than usual that much of our stuff was spoiled in spite of the precautions we took. A fierce wind, with a zero freeze, made havoc with our sashes, mats, cloth frames, etc.; and this is one great trouble with the frames covered with cloth instead of glass. Unless the frames are

fastened down very securely, the wind takes them and sometimes carries them long distances; and when this occurs during a severe freeze it is disastrous to the contents of the cold frames. At one time a cloth-covered frame was blown or whirled over on the greenhouse, breaking quite a little glass there. It is true, we may have weeks and months when they keep their places perfectly, and every thing seems to be working nicely; but a windy time comes, and the owner is almost tempted to wish he had never heard of cheap cloth frames instead of glass sash. Glass sash lie safely where you put them, providing they are not left in such a way that the wind gets under them and throws them over. The cloth has, however, so many advantages besides cheapness, that I have been thinking it would pay to have some arrangement to hold the frames in place. Last spring we succeeded in having an abundance of nice lettuce all through February, March, April, May, and even June; but just now, however, toward the latter part of July we find ourselves short. Lettuce sells now in Medina pretty fairly during every month of the year. In February, March, and April, we find no difficulty in getting 40 cts. a pound. In May it went down to 20 cts.; in June, 10 cts.; and now in July it sells at 5 cts. I suppose you know, however, that it pays an excellent profit at even 5 cts., if properly managed.

During the winter months, when there was but little to be carried on the wagon, one of our enterprising boys decided there was no use of having more than one person in charge of the wagon; and he declared he could sell almost as much stuff alone by himself, without having even a boy along. We have a big stout horse—one that is equal to any thing in the way of bad roads, but a horse that will stand anywhere you leave him, and as long as you want him to stand. Such a horse is an acquisition for a market-wagon. This young man also did all his loading up and preparing his stuff, or pretty nearly all, during the afternoon; then he was ready to start out the next morning, feeling sure that every thing was just as he placed it the night before; and where there were two on the wagon this could not well

be. When sleighing was good we procured a pair of runners that slipped on to the wagon in place of the wheels, and with this arrangement he found he could get around so rapidly as to meet almost all of his customers before any of his vegetables had time to freeze, even with moderate protection. When garden-stuff began to get more plentiful I thought he would need more help; but he was interested in seeing how long he could get along without the boy, and I believe he kept it up until the receipts from the wagon began to be about fifteen or twenty dollars a day. During strawberry time, however, when the receipts ran up one day to a little over \$32.00, he decided he needed a boy to help handle the stuff. Of course, he had a little more wages, as an encouragement to take charge of the whole institution. I used to estimate that it required about one-fourth of the value of garden-stuff to get it converted into cash. During this last spring, however, with the arrangement I have mentioned, the expense was something like this: Horse and wagon half a day, 70 cts.; man to go with it half a day, 80 cts.; total, \$1.50. Now, if we sold \$15.00 worth of goods during the forenoon, the cost of selling was only ten per cent; but we have not been able to keep the expense of selling as low as this much of the time.

Now, in regard to getting the stuff on the market when none is to be had elsewhere, so we can have the monopoly: In the latter part of the winter we had the only celery that was in Medina. This same young man gave me an agreeable surprise by telling me he could get 40 cts. a pound for all the celery we had left. There was none to be had elsewhere, and we have a few customers who will pay almost any price to get such delicacies in the winter time. In the same way we got 40 cts. a pound for our choice lettuce. I suppose the friends who have been through a similar experience know what a pleasant feeling it is to find you are going to get enough for your product to pay for all the trouble and bother, including bad luck and reverses. When prices are low it is always well to do the best you can, and *try* to make both ends meet. It certainly is not very pleasant to sit down and figure up that you have paid out more money in securing a crop than you can get for it at market prices. But we often have to meet this state of affairs—at least we do now and then. In such cases we ought to look over the ground carefully and see whether our crop may not be put away so as to be kept

until the glut in the market is over. We managed to house our celery so that most of it kept very nicely; but the expense of putting the crop away (during a snowstorm), the boards required to cover the crop, and the expense of banking it to keep out the frost, cost so much that I felt a good deal disheartened. I had not expected to get over 15 or 20 cts. a pound for it; but when Mr. Weed sold it for *forty* cts., then came the agreeable feeling that we could go to work to improve on our plans another season, with the assurance that we need not be afraid to invest some money in doing it well. I do like to do any thing well that I undertake. It was the same way with the lettuce. I discovered that I could safely make a nice little greenhouse in a good sunny exposure, for the sole purpose of growing *lettuce alone*, and nothing else.

In regard to outdoor crops I have been agreeably pleased to discover that we need not be afraid to go to the expense of thorough underdraining, manuring, and even ridging the ground up in the way we have, so as to have it dry enough to work in the spring. After the last severe freeze in April I decided it would be safe to at least try a good many of the hardier vegetables in the open ground, if I could get a piece of ground thoroughly prepared. The trouble was, it was all too wet when the frost got out. The most promising piece of ground was where celery had been last year, and the ground was left in high ridges during the winter. These ridges were mellow, and would work nicely when every thing else was wet and sticky. I went over the ground with a potato-fork, and tried it every forenoon and every afternoon, to find the very earliest hour when it would do to put heavy horses on to it; and, by the way, we can't expect to do very much on outdoor crops by spading up by hand. I have tried it some; but a team with improved machinery does so much more, it seems as if we had better wait a little, until the ground gets so that horses can go on it. This celery ground had been manured the summer before, so heavily that the celery was almost burned by the quantities of stable manure piled on to it. We plowed the ridges down, harrowed it, then worked in a little more of the very nicest manure we could get, and the ground was ready for our crops. A storm was coming on, and there was but little time. This season we have a grain-drill to sow our seeds with instead of doing it by hand. The grain-drill was brought out hastily, and a

part of the tubes were stopped up with wooden blocks, so that we could sow peas in a double row, then a space three feet, and then another double row, letting the phosphate attachment sow phosphate all over the ground. It took perhaps fifteen minutes to sow the peas, as above. Had we done it the old way by hand, the ground would need marking out with some sort of furrower; then we should have to sow our phosphate in the furrow, and sprinkle in the peas, either by hand or by some sort of hand-drill; then they must be covered over with a horse or by hand. The grain-drill did it all in these few minutes, and covered the seed perfectly. Before the drill was put away in the tool-shed, however, I sowed two double rows of spinach the same way we sowed our peas; then a couple of rows of Eclipse beets, and the machine was ready to go in under cover before the storm came. It seems to me I never had any piece of work so satisfactorily and quickly done as it sowed the beets and spinach. All the time occupied was in letting the team walk from one end of the field to the other. I left spaces between the beets, for early cabbage. These we managed to get in, the same day. They were our best plants, from the cold frames, and wintered outdoors, so of course they could stand a freeze. The freeze came, and the cabbages looked for a good while as though they would never do any thing. They stood there; they did not die, it is true, but they did not seem to grow a bit. The weather was so cold that the beets and peas were so slow in starting that I began to be afraid that they were not going to start, but they did. The spinach, however, came up the first of any thing. It was too cold for any kind of weeds, so the hardy spinach had the full use of the ground. By and by the cabbages got started; and after a while the beets began to come up quite thickly. The spinach never received any hoeing or weeding whatever. Before weeds had a chance to make their appearance, the leaves covered the ground; and when the vegetable was worth \$2.00 a barrel at wholesale, we could easily get a barrel of extra nice from a rod of row.

Now, very likely many of you know nothing about spinach. When we first put it on our lunch-room table a great many would not take it at all—said they didn't like "greens." I explained to them that spinach was not greens at all—that it is a delicious vegetable more like asparagus. Finally they got to tasting it, and pretty soon

spinach was in big demand. Let me remind the housewives not to cook it as greens. Cook it as you do asparagus, and it will pretty soon go off fast enough. It seemed for a time as if our town could not get enough of it; and after the plant began to send up seed-stalks a yard high, we sold it for greens even then. These two rows, however, were too much for our Medina market. It could not be all disposed of before it would probably get too old and hard for use. As it was a new vegetable to us, however, we did not know just when it would cease to be edible; but as there was more than our town could consume, it began to be a question what we should do with it. I remembered hearing about a kind of cabbage that grew so fast that one head would support a cow—that is, as many leaves would grow over night as she could eat during the day; and when I saw our Jersey cow looking wishfully at the beautiful dark-green rows of spinach, I pulled her an armful to let her taste them; and from that day forward she had spinach to her heart's content. In fact, she preferred spinach to any thing else that could be offered her, and it seemed almost impossible to give her more than she could dispose of. Did it affect the milk? Not at all, until the plants had gone so far in perfecting seed-stalks that they were slightly bitter, then the milk began to taste of it. Now, this plant made this luxuriant growth almost before any thing else began to look green; and I hereby give notice to the agricultural papers, and to farmers in general, that spinach may be raised for cows before you can raise any thing else I know of, unless, indeed, it is rye, and I am sure that spinach will go away ahead of rye in the amount of foliage it produces. If it happens to be worth two or three dollars a barrel in the market, why, of course you would not think of giving it to your cows. The books tell us it can be wintered over just as well as wheat or rye. I have never succeeded in doing it, however; but I am going to try harder again this fall and winter, and I think I shall succeed. After we had used and sold all we could of those two rows, I kept the cow on it for quite a long time, and then there was considerable still left to go to seed. When the seed got brown we cut it with a cradle, and it is now stored away on the barn floor, dry enough to thrash, and fan out with a fanning-mill, so I have my own seed for next year. There is just one thing about this great crop of spinach that I think it may perhaps be well to

mention. Joseph Harris, of the *American Agriculturist*, has been writing a great deal about nitrate of soda, especially its property of furnishing nitrogen very early in the spring, much cheaper than we can get from stable manure. I bought a bagful; and as some of the papers said it was especially suited for spinach, I put a pretty good-sized sprinkling on just one-half of the two rows (when the plants were small) and put it on to the poorest end of the piece of ground. Well, I watched and watched to see any effect produced, until I concluded it was not going to do any good at all upon our soil, and forgot about it; but when I began feeding it to the cow I noticed the spinach was a great deal larger and stronger where the nitrate of soda was, although, as I said before, this end of the field had always been much the poorest ground.

Well, about the time spinach failed we began to get nice beets from that patch. They came up very thickly, and we did not thin them at all, proposing to use the thinnings for beet-greens. From those two rows of beets we have sold beets all over town—have supplied the lunch-room, and there are a good many there yet. The beets were put in between the cabbages, so the ground they grew up on cost nothing, in one sense; in another sense it did cost, because we tramped the ground down so hard around the cabbages in going for the beets in all kinds of weather. On this account the cabbages have not done as well as they did last season; but last season we thought they were doing great things when we succeeded in getting 3 cents a pound for them. This year, however, Mr. Weed started them at 5 cents a pound, and they brought it without any trouble, and we are even to-day (July 19th) getting 5 cents a pound for every cabbage as fast as it makes any kind of firm head, and we don't have enough to supply the wagon.

The peas did beautifully. They were half Landreth's Extra Early, and half American Wonder. The American Wonder was only about three days later, and a great deal better in quality. We got 40 cents a peck, for most of the peas; but the crop was so great that at one time we feared we should not be able to dispose of all of it in Medina. One week later, however, we discovered that our peas were gone just as we had got a big trade started in them; and the worst of it was, we hadn't a pea anywhere else on our ten-acre farm that was yet in blossom. A year ago we had too many peas and cabbages in July,

so I concluded this season not to plant so extensively, and there is where I made a blunder. The quantity we had last year would have been exactly right for this, for our market has improved so much. Last year people were discussing my right to raise garden-stuff. This season, however, they have all given it up—every one of them, and everybody seemed by actual consent and good nature to decide I was the chap to raise garden-stuff, and therefore they would not raise any at all. I am ashamed of my lack of faith. Faith in what, do you ask? Why, faith in good gardening and good steady work in any line of agricultural industry. It is impossible for me to say just now how much money we receive from the product of the half-acre I have been speaking of; but it would be a large sum. A crop of nice cabbages how stands where the peas stood. The beets and cabbages are pretty much gone; but even yet they give a good daily income. We are waiting for them all to mature before putting another crop in their place. I hardly believe I shall plant beets between cabbages again. The beets do not get out of the way soon enough. I presume I put more manure on that half-acre than I ever put on any other piece of ground before; but now that we have got it up to a high state of cultivation, it is only just fun to raise a crop on it. The last cabbages were planted in a dry time, but they took right hold and grew without any rain, almost as if rich ground like that didn't need any rain. The soil has been kept light and soft by constant stirring, keeping what some of the agricultural papers call a "dust blanket" all around the plants. This dust blanket serves as a mulch; and when we get just a little shower of rain, the dust blanket takes it all up, much as a sponge would, while hard lumpy soil would let the water all run off and be lost.

MAKING REPEATED PLANTINGS.

It seems hard for us to remember that it costs but little to put in the seed for early stuff, even if it is killed by frost, or does not germinate. You see, it all depends on having things on the market first; and it is so natural to procrastinate, or delay, that it is almost impossible to avoid falling into the common way of doing things the world over. The man who has his vegetables and fruits on the market first, takes the big prices. Now, there is not any need of saying, "It is no use—somebody else will get ahead of me;" for season after season we see it demonstrated right before our eyes, that not

only days but weeks of beautiful weather come and go, unimproved. As an illustration, during the winter I read up the matter of early cucumbers, in our books and agricultural papers, until I was impatient for the time to come when I could start some in cold frames; and several hundred squash-boxes, such as are shown in Chapter XXIV., were made up in anticipation of the time when they would be used for squashes, cucumbers, etc. Well, how many do you suppose we used for the above purpose? Not one. And how many hills of cucumbers do you suppose we put in our cold frames, where they could be protected from frost when a cold night came? Not one. We started some cucumbers in the greenhouse, it is true, and transplanted them outdoors as soon as we could get the ground suitably prepared; but by this time there proved to be no further need of the boxes to keep off frost, and no further need of the sash on cold frames. We transplanted our cucumbers from the greenhouse into the cold frames, intending to put on the sash; but there was not a night cold enough to need the sash after we got around to doing it. Well, at the same time we transplanted these cucumbers we put a few seeds in the open ground right beside them. This open ground was in a cold frame, and very rich with manure. The weather was so favorable that the seeds came up almost as if by magic, and this, too, without any sash over them, remember. I didn't put on the sash, because we had a succession of warm showers; and the seeds that were planted beside the transplanted plants for cucumbers, gave cucumbers exactly the same time as the latter, although the plants in the greenhouse had three or four large leaves on them when set out, and some of them even had a blossom or two. But, my friends, even slipshod management like this paid a big profit. A cold frame the size of six sash gave a peck of cucumbers a day in July, that sold for 5 cents each, or by the pound at a uniform price of 10 cents per pound, which I think is by far the better way. Even at this date, all the cucumbers we get from the open field bring 10 cents per pound right along; and in June they sold readily at 20 cents a pound, in considerable numbers too. Of course, the market may be overstocked in a town the size of ours; and while they take from a half to a whole bushel of cucumbers a day, and pay good prices, if we were to produce twice that quantity we should very likely overstock the market, and in a little

time people would get tired of them. To avoid this you must have a variety. When people tire of one thing, give them something else. Something new is constantly wanted; and when it starts out you can get excellent prices for it. Our first green corn, put on the market July 18, brought 20 cents per dozen. It is Ford's Early corn; and although the ears are very small, the quality is so good that people don't mind paying a good price for the first. By our blunder in not having a crop of new peas for a week or two, our people got quite hungry for them; and when we commenced on the Stratagems this week they went off at 40 cents a peck quite readily, even when two or three bushels per day were put on the wagon.

RAWSON'S SQUASH-BOXES, AND DO THEY PAY?

Now in regard to getting the ground ready, and *trying* a few seeds, even before we have reason to expect they will amount to any thing. We did this with the peas pretty well. We sowed our first in the latter part of February. We fixed the ground the best we knew how, and manured it lavishly; and although they started during March they did not get ahead of some sowed a month later, and both the February sowing and the March sowing produced peas fit for the table only three or four days before those put in with a grain-drill in April; so you see this year not much was gained by sowing them very early. With cucumbers, however, we did a very nice thing in sowing a long row on the creek-bottom ground fully two weeks before anybody would suppose it would answer. The weather was so favorable they did not need the squash-boxes at all, as I have told you; that is, they did not need them on account of frost. They did need them, however, on account of bugs. One morning in May, one of my men told me our squashes would have to be taken care of or the bugs would destroy them. The wagon was not ready just then to bring the boxes out to the field, and so I didn't attend to it right away. I had been through the patch in the morning, and didn't see any bugs, and therefore I began to conclude that may be we shouldn't need to bring the boxes out at all. I happened to pass through the vines, however, about ten o'clock. Imagine my surprise to find swarms of striped yellow bugs all over the vines; and to my great surprise, some of my beautiful squashes, with the first leaf almost as large as your hand (providing your hand is a very small one) literally torn to bits by those voracious

insects. I had heard that boxes without any thing over the top would keep off the bugs, and half a dozen boys were sent for the boxes in a hurry, I tell you. The bugs were scared off, the boxes placed carefully over the vines, and the soft mellow dirt banked around the lower edges to make them tight. The bugs were foiled for three or four hours. The weather was too hot to put in the glass, so we tacked pieces of mosquito-netting over the tops. I didn't discover how much harm the bugs were doing again until after sun-down; but I saw then there wasn't a moment to lose. We couldn't even wait till morning. I found some of the women still in the book-bindery at the factory. I asked them to cut me 200 pieces of mosquito-bar as quickly as possible. Then I called the children, aged respectively 14, 8, and 4, got a pocketful of small tacks, and two or three three-cent hammers. On the way to the field we met one of our eldest daughter's schoolmates, a young miss thirteen or fourteen, and I secured her services. When we got down by the carp-pond a small boy came up with the oft-repeated question,—

"Mr. Root, can't you give me a job?"

"Yes, sir," said I, "if you will go right to work now."

He replied that he had not intended to work until morning, but if I were very particular he guessed he would help. This boy was about six years old. Caddie's cousin Mabel, also eight years old, made up the number, and we seven had the mosquito-netting put on nicely before it was dark. Besides chasing the bugs, we stopped up the crevices below again. It was Saturday night was one reason why I hurried; but it saved our Hubbard squashes and Boston marrow squashes and cucumbers. The bugs swarmed all over the boxes, and looked through the mosquito-netting, and probably lamented that they were foiled. We left part of the vines without the covering, to see what they would do. About half of

them survived until Monday morning, and then we made another disappointing discovery. The yellow bugs, after working for two days at the problem, discovered they could get through the mosquito-netting by dint of hard kicking, and Monday they could be seen on almost every box, half way through the netting, kicking their heels up in the air. They didn't get in, however, to do very much harm, and the rest of the vines were covered with boxes protected by *grenadine*, such as we use for bee-veils. This fabric costs a little more per yard, but it is absolutely secure. The vines under these boxes covered with *grenadine* were the handsomest I ever saw in all my life. There was not a speck or blemish on the bright-green leaves; and, oh how they did grow! In a little time they raised up the netting so that it looked as if they might raise the wooden boxes too, if we didn't give them room, and in eight or ten days the bugs were gone. We tumbled off the boxes, put them into the wagon, and stowed them away in the tool-house; but they had paid their cost in satisfaction if not in dollars and cents. We have not sold the squashes yet, so we can not tell how they will come out; but there is a lot of them now, as big as goose-eggs.

There is a point I wish to make right here in regard to fighting bugs and insect enemies. I do love to have something that is absolute and certain. Where we use Paris green, slug-shot, and most other poisons, the matter is imperfect and uncertain. The bugs are mostly killed; but if a rain comes we have to go over the same thing again, and sometimes the poison does not seem to work. It is true, it is some trouble to put the squash-boxes on and take them off again; but it is absolute and sure; and I believe that next season we will use these same boxes for our early potatoes, instead of having children pick the bugs off by hand, as we have done during this past season.

CHAPTER XXXVIII.

TILTH VERSUS MANURE.

He that tilleth his land shall have plenty of bread.—PROV. 28: 19.

I have been making a good many experiments during the past few months, to ascertain how far tilth may take the place of manure. In the previous chapter I spoke of the dust blanket to mulch plants, as a rem-

edy for drought. Now, we can't have a dust blanket unless we have the dust; and the only way to get the dust is to make the soil so fine that it works like dust. It may be damp dust, but it should be thoroughly fined

up, to get the best results. The Acme harrow, figured in Chapter XVI., is a splendid machine, in connection with the roller, to get this dust; but it has never worked deep enough to really suit me, especially in stub-born clay soils. This spring and summer we have been using a disk harrow that pleases me much.

This machine can be made to cut down so deeply, by adjusting the position of the disks, that it almost plows the ground; in fact, after digging your early potatoes it will do a very good job of plowing and harrowing, if you pass it over the ground repeatedly, and cross it in different directions. It not only cuts up the lumps, but it scrapes them as you would scrape an apple with the point of a case-knife. It also pushes sods, vines, litter, etc., down deep into the ground, instead of tearing them up. It, however, leaves the surface much more uneven than the Acme harrow, and on this account I prefer to follow it with the Acme or Thomas smoothing-harrow, shown in Chapter XVIII. Some of you may smile at the idea of having so many tools for a farm of ten acres; but, my friend, if tools enable you to get double the crop you would have without them, or if you do the work in half the time you could do it with ordinary tools, they will eventually prove to be a saving.

I want to tell you of a little experiment I made, to show what tilth will do. We had some musk-melons on the creek-bottom ground, that were so nearly used up by the bugs and drought that I had almost decided to plow them up and put in some other crop. We didn't have enough squash-boxes to go over the musk-melons, and they were, so to speak, left out in the cold. A great many of them were used up entirely, and the rest looked as if it were utterly impossible they should be of any use. I thought, before plowing them up, I would experiment on them some, so I picked out a nice steel rake.

The handle had been broken off, so it was not longer than an ordinary hoe-handle. The rake had been used so much that the teeth were bright and sharp. Well, with this rake I went around several of the melon-plants, and scratched away the surface dirt until I got down to where I could see the white roots coming out on the stem of the plant. This operation of scratching the dirt away with that sharp-toothed rake fined the ground up almost like dust. I then fined up the earth for pretty nearly a yard in each direction around the plant. When I had a sufficient quantity I banked

it up around the plant, clear up to the leaves, and I made the bank flat on top, instead of sharp, the way a good many hill up potatoes. This gave the plant a dust blanket three or four inches in depth, and perhaps three or four feet across the level top.

A point comes in right here that I wish to consider, in making plants grow. On ordinary ground we do not have more than from four to six inches of good rich mellow soil. If you plow down deeper than six inches you turn up lumps of hard subsoil that will spoil your whole crop, as many of you have learned by past experience. Now, instead of plowing down six inches more to get a depth of soil a foot, suppose you scrape off this surface soil from a part of the ground, so as to make it double depth on another part; you then have ten or twelve inches of fine mellow *fertile* soil; and this will give you a good big crop of almost any thing. I first noticed it in scraping off the surface soil where we wanted a road at one end of our long piece of ground. Where I doubled the dust blanket I could raise magnificent cauliflower, and great whopping potatoes, with a good many in a hill; but with a single thickness of dust blanket, the results were only ordinary. Well, now, around my melon-plants I had a double thickness of dust blanket. The melons were six feet apart, and it was no trouble at all to get fine dirt enough to fix each plant as I have described. What was the effect? Why, those poor, miserable, starved, sickly melon-plants of a month or six weeks ago are now the finest I ever owned in my life. I didn't know before that a poor, miserable, sickly plant could be transformed by tilth alone. When I was satisfied with the way it worked I cultivated the ground between the melon-plants until it was about as fine as I could get it with a horse, then I got one of my boys, who would do exactly as I told him, and not according to his own notion of things. I told him I wanted all of our melons, squashes, and cucumbers fixed like the sample I did while he was watching. Now, he, like all the rest, was so prone to just pile up the dirt in a sharp hill that it was some little time before I got him to do as I did; and, by the way, there are a good many boys and men who absolutely will not place the soil so as to make a broad hill around the plant, to catch the rain. They have so long been accustomed to piling the dirt up into a sharp-pointed cone that they won't do it in any other way. Well, this matter of scraping the dirt away with a

rake until you begin to strike the roots is another point that I can't get boys and men to do. They will start out all right; but when I come back to examine the plants, and try to put my fingers down among the roots, I find the dirt so hard that it is very plain the rake-teeth never went down there at all. This is the great secret of making things grow, however. If the ground is loose and porous, the air gets down around the roots, and the soil keeps very much damper than if it were packed hard and stubborn. When rain comes, your dust blanket of several inches in thickness soaks up the water like a sponge, and holds it, even during a pretty long drought; while a soil that had not been worked up into dust would neither catch nor hold hardly any of the water that fell.

TRANSPLANTING IN JULY AND AUGUST.

In spite of all that has been said on this subject, it seems there is no end to the time and money wasted in this simple operation. During a rainy time, when it rains every afternoon, or almost every night, almost any kind of plant will grow if a little dirt is over the roots in any sort of shape; but where you want to put out cabbage and celery plants in July or August, and during a time of drought, there must be different management. In the first place, you want transplanted plants. A cabbage-plant or celery-plant grown in the seed-bed, with the soil ever so good, and with the plants scattered over plenty of ground, is pretty sure to send down a single tap-root, with a few roots running out each way. When they are pulled up, the little roots snap off, and the tap-root breaks off, a great portion of it. By digging them out with a spading-fork you can get more of the roots; but even then the plant is not to be compared to one that has been transplanted according to the directions in the fore part of these writings. About six weeks ago we had some very large, fine-looking celery-plants standing in the seed-bed. They were almost too large to transplant, so I decided to put them into the rows in the field, just as they were. We had plenty of rain; but the greater part of them died. At the same time, we put in one or two rows of transplanted plants. These had great bunches of roots, something like a small brush-heap; and when the plants were pulled up, the ground being properly wetted beforehand, this mass of roots brought along with it a great lot of the rich soil of the plant-bed. Well, these trans-

planted plants are to-day great stout stalks of celery that would do very well to put on the table, while those taken from the seed-bed are spindling and feeble in comparison.

Now, when you get your transplanted plants with a great strong mass of fibrous roots to each plant, do not, under any circumstances, pull them up so as to tear the roots off, nor let any man or boy do it. If you don't watch them carefully they surely will; and it does not seem to make much difference how many times they have been cautioned and talked to. Before trying to remove any plant, soak the ground thoroughly with water, no matter if it has been raining within an hour. Soak the ground until it is so soft that every thing is in a mush. If possible, soak the ground two or three hours before you wish to remove the plants, then soak it again just as you take it up.

Few people have any comprehension of the amount of water that a small spot of ground will take up; and if you want to get your plants up nicely you must pour on water at intervals until the plants will come up without the snapping or breaking of a single fibrous root. As the plants are pulled up, lay them down gently in a market basket stood on end. When you carry them to the field don't carry the basket by the handle, but take hold of the upper end of it. If a boy drops plants, don't let him pick them up by the tops and drop them into the furrow. Insist that he handle them by the *roots*, and keep every particle of wet dirt adhering to them all he possibly can. Don't be satisfied by once telling him, for he will soon get tired, and begin to pull them out of the basket by the tops, letting the dirt slip off or rattle off. Keep your eye on your boy and on your plants. Set them in place in the furrow; press the soft earth about them; and if the weather is dry, firm the dirt around each plant, by setting your foot on each side of it. You can do this after you have got them all in the ground. Now finish off with your dust blanket, by pulling up some soft fine dirt around each plant, with a rake. If the ground is moist from a recent rain, you can omit the firming. Plants set out in this manner will grow right along; and instead of being discouraged and hindered they only seem to rejoice at having plenty of room and plenty of daylight all around them, compared with their crowded situation in the plant-bed from which they had just been removed.

To be continued.

PROF. COOK'S CELLAR FOR WINTERING BEES.

DR. C. C. MILLER'S CRITICISMS.

PROF. COOK'S ideal house for the apiary is equaled, I venture to say, by few in actual existence. To the many who may contemplate building, however, the right plan is of so much importance that his plans deserve what I know he desires—the closest discussion.

Nothing is said about the number of colonies for which provision is to be made—a matter that can not be ignored. It is better to have too much than too little room; and one is hardly sure, at any time, to what number he may increase. I should think Prof. Cook's plan is ample for 500 colonies, except in the matter of cellar room. I question whether his house could be built in this locality for \$500. Mine is 18 x 24, three-fifths the size of his, less expensively furnished, and I think it cost about \$400.

I should like the chamber higher than 6 ft. at the lowest part. The cost for two feet more in height is little, and it often happens that one wants to stack up things as high or higher than he can reach; 16-foot posts will make each story higher.

The timbers for the lower floor should be made of extra strength, if honey is to be stored there; and this reminds me that, in such a case, 30 x 24 may not be large enough for 500 colonies. My honey is stored in a separate building, which makes a difference. I suspect it would be better to have all in one building.

Does it pay to give up two fifths of the cellar room for the sake of having that outside room? Of course, if there are bees enough only to fill the room 18 x 24, it may be better to put in a partition; but even in that case I believe I would rather have the one room 30 x 24. I have an impression, from no little experience and observation, that the fewer colonies in a cellar, or the larger the cellar for a given number of bees, the better they will winter.

His idea of having the cellar entirely under ground is capital. If the lay of the land does not make it so, it can be made so by heavy banking.

He says the cellar should be "grouted below and plastered above, with a double floor grouted between." If by being "grouted below" he means a floor of cement, or grout, I raise question. I have one cellar room with a cement bottom, and I have an impression that the earth floors do a little toward purifying the air. The reverse, however, may be the case. How is that, professor? And just how is the "double floor grouted between" made? My shop cellar is not yet plastered overhead. Is there anything I can do, better than to have common lath and plaster for a ceiling?

If there is any danger from rats, it is a matter of little cost and much importance to have the cellar wall extend a foot below the level of the floor. Dig a trench a foot deep, around the cellar, under where the wall is to be placed, and fill it up with small stones and grout. No rat will ever undermine this. A rat does not dig down to get under a wall, but gets inside and digs out.

Four-inch glazed tile is mentioned for a sub-ventilation pipe in the text; and in the reference to figure it is called six-inch. Which is right? Glazed tile is much more expensive than unglazed, but perhaps its greater durability may make the glazed preferable. If four-inch tile is used, little or nothing is gained by having the drain more than 100

feet long. If there is any point at which I consider Prof. Cook an unsafe adviser, it is at the point of ventilation. Although I can not give positive proof for my position, I have had a good deal of presumptive evidence, based on a good deal of experience, that it is well to have a cellar thoroughly ventilated. As he says in remarks upon diagram, I prefer a ten-inch tile. The difference in cost is not great between that and smaller tile; and if at any time the ten-inch tile admits air too rapidly it can be lessened to any desired extent. The ideal cellar for wintering bees will have a larger area for entrance than for exit of air, the walls at all points being as nearly as possible air-tight.

I don't see how emptying the cistern will do much toward cooling the cellar. Little or no rain will enter it after freezing weather, and the water will acquire nearly the same temperature as the cellar, so I don't feel so sanguine that "we have an arrangement by which we can control the temperature perfectly from October to May." I do have faith that some day some one will get sub-ventilation to such a point that, through the whole winter, sufficient air of the right temperature shall pass through a cellar to control the temperature of the cellar.

I wouldn't use a wheelbarrow to take bees in or out of a cellar. I object, even, to any one stepping heavily when carrying them. On taking in, shaking up makes them more uneasy; and on taking out, it makes them fly out before being placed on the stand.

I am not sure that I like the professor's southeast room for comb honey and office. For wintering comb honey it might be good; but it is not the best place for ripening honey in summer and fall. As to an office, I am afraid I shouldn't use it much if I had it. Until the last year I never had so much as a desk, and even now my office is as likely as not to be the dining-table. A literary man, or a man in Prof. Cook's position, may need an office; but there isn't much chance for office work in bee-keeping.

The diagram shows the double doors opening at opposite sides, thus:

I think mine are more convenient, opening at the same side of the doorway, but hinged on different sides of the jamb.

It might be economy of room, and a little more convenient, if the stairway were close to the outside door.

C. C. MILLER.

Marengo, Ill.

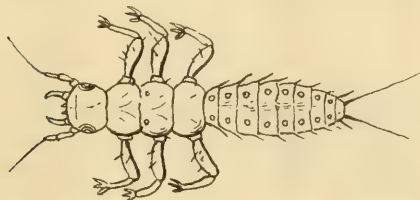
Friend M., since you mention it I want to suggest that the floor on which the honey is to stand should be made exceedingly stout and strong. Three or four times in my experience I have seen floors seriously injured by the honey that has been piled on them. Our extracted honey rests directly on the ground, in the basement. I presume there would be an objection to placing comb honey this way; but please remember that the floor that is to hold the honey must be made to stand the effect of a tremendous weight, as well as the ravages of time. I would have good stone underpinning, and timbers that will not rot or break. I would also say, by all means have the wintering-cellar under ground. Sawdust walls do very well

until we have a freeze that is unusual in severity and duration; then a cellar is away ahead. By all means, fence out rats. I also agree with you in regard to ample ventilation. Have the sub-earth ventilator large, or two of them. When the air is pure, the bees are quiet. When it smells close and bad, then is the time they begin to get up a roar.—Friend M., while reading your objections to a wheelbarrow I could not help wondering if you were not thinking of that old-fashioned home-made one of yours. Please bear in mind that the new light wheelbarrows we have for sale do not wake up all the babies in the neighborhood when you are wheeling a bee-hive. Put a coat of sawdust on the floor, and neither the stepping nor the barrow will give back any sound. May be your wife might have some different ideas in regard to having a desk in an office, in place of using a dining-table.

BLISTER-BEETLE LARVÆ ON BEES.

A WONDERFULLY STRANGE AND CURIOUS FOE.

THE insects sent by Mr. Hammond, Ellensburg Center, N. Y., are interesting, as this is the first time, so far as I know, that such insects have been reported as disturbing bees this side of California. By referring to my Bee-Keeper's Guide, p. 329 (10th to 14th thousand), there will be found an illustration of a similar insect, or possibly the same species, which was discovered by Mr. Rainbow, of Fall Brook, Cal. He says he found as many as seven of the insects on a single worker bee. Mr. Hammond says they make the bees uncomfortable, if we may judge by the actions of the latter, as "they try to rub the parasites off, and twist as though they itched and were trying to scratch themselves." There were three bees sent in a small tin box, and twelve of the parasites.



LARVA OF BLISTER-BEETLE, TAKEN FROM HONEY-BEE.

These insects are really the larvæ of some blister-beetle. As *Meloe Angusticollis* is a very common species in all our Northern States, it is not unlikely that this larva belongs to that species. This beetle, which is also illustrated in the Manual of the Apiary, page 329, is of a dark-blue color, has short wing-covers, and the gravid female has a very large abdomen, which should not astonish us when we remember that she may lay from 3000 to 4000 soft whitish cylindrical eggs. We have several species of blister-beetles, all of which, I believe, have vesicatory properties, and might be used as satisfactorily in medical practice as is the "Spanish fly"—more properly the Spanish beetle. The meloe beetles lay their numerous eggs in patches in the earth. The eggs hatch, and the young—the same

as those discovered by Mr. Hammond upon his bees—crawl upon some aster, goldenrod, etc., and wait for some bee to come along. As soon as a bee alights upon the plant they crawl upon it and so find a safe and easy transit to a hive, where it is said that they pass from the bees and subsist on eggs. As they seem to adhere to the bees so tenaciously and persistently, may it not be that they also feed upon pollen that has adhered to the bee? As their mouth parts are fitted for biting rather than piercing and sucking, we can hardly think that they do any very serious harm to the bees. This form of the insect, generally known as triungulin, was supposed by even so good a naturalist as Reaumur to be a louse. It is supposed that, once in the hive or in a bee-nest—Newport, as early as 1841, found these insects in the nest of anthophora, a wild bee—they live on eggs. Soon a second larval form appears, which is larger, but slow and awkward in its motions. Newport says this feeds upon the honey. It probably also feeds upon pollen, as honey alone could hardly supply its needs. Soon it changes again, when it looks like a pupa, though this soon transforms into a third larva, and then to true pupa, and last into the mature beetle.

Fabre denominated these curious changes hypermetamorphoses, to distinguish them from the usual transformations of insects. These changes were first described fully by Fabre in 1856.

The second and third larval conditions are quite degraded, and remind one of bot-fly maggots and other dipterous larvæ. The first, or pseudo-pupa, looks very much like a real pupa. As these insects have never been studied in full except in the nests of wild bees, it is a question of much interest whether they go through all their changes in the hive of our honey-bees, and whether they do live on eggs and honey as Newport and Fabre suggest, or whether they may not feed upon the pollen of the hive or the food of the larval bees, and possibly on the young or immature bees. These questions are very interesting ones, and their answer would satisfy Mr. Hammond's query as to the extent of harm they may do, and the probability of their spreading. The very fact that, as yet, they have never done serious harm, makes it probable that they will not do so. If Mr. Hammond will send me fifty or a hundred of these triungulins in a close tin box, with a few of the bees on which they are found, I will try hard to find out just what they will do.

A. J. COOK.

Agricultural College, July, 1887.

THE BEE-MARTIN.

HAS HE A MEANS OF ATTRACTING BEES?

SINCE it seems to be a universally admitted fact that the bee-martin is destructive to honey-bees, are you aware that he is provided with a natural means of attracting the unwary bee and other honey-gathering insects within his reach? Having heard this a few days ago for the first time, and being just the least bit skeptical—although we got our information from a reliable source—and observing a bee-martin innocently perched on the top branch of an apple-tree in our apiary, we determined to make a sacrifice of him in the interest of science, or, more properly speaking,

for the gratification of curiosity, and accordingly had our little boy dispatch him with his sling-shot. On examination we found it just as represented; to wit, that while on the wing, or not in quest of food, the back of his head is smooth, sleek, and black; but when he starts out for a meal he perches upon an exposed twig, sets his decoy, and waits for the lurement of prey. The decoy consists of a good imitation of a bright attractive little flower on the top of the head, in which white, lemon-yellow, and deep orange colors are beautifully blended, which the bird has the power of displaying at pleasure. It is the belief among old bee-hunters that he uses this to attract bees and other insects that gather honey from flowers, and is thus enabled to secure his meals without much exertion. It is a regular "won't you walk into my parlor?" game he plays, and his hospitality is about on a par with that of the spider.

The long-continued dry spell here has materially lessened this season's honey crop; in fact, it will be next to a complete failure, unless the fall flow should be unusually good. In our apiary the colonies have the lower frames all filled with honey, but thus far they have stored very little in the section boxes. They disposed of the drones some time ago, and are now apparently laying up stores for the coming winter.

We have aimed to keep our colonies strong and active; and hence, by destroying queen-cells, have prevented swarming to a great extent, having no desire to increase our present stock. We have the Carniolans from Germany; Italians, hybrids, and blacks; but for gentleness and docility in handling, the Carniolans take the palm by a large majority.

Taylorville, Ill., July 4, 1887.

J. F. HARNER.

ALSIKE AND ITS PECULIAR CHARACTERISTICS.

A POSSIBLE EXPLANATION FOR THE MISUNDERSTANDING BETWEEN FRIENDS MUTH AND CORY.

IN looking GLEANINGS over, my eyes struck Prof. Cook's article on alsike clover. I am surprised that any one should have any trouble in identifying it from red clover. Friend Cook is sound in his conclusions, but I think there is one point he does not fully reach. Alsike will germinate where common clover will; but if we have a dry spell after it comes up it is *quite apt* to die almost entirely, where the size and vigor of the red would carry it safely through. It does not sport. I have watched (supposing it to be a hybrid) for five years carefully, to find some variation of the set type, and have publicly offered \$50.00 for a cross between alsike and small red clover, but all to no purpose. In its root formation, alsike varies; and the tint or color of the blossoms ranges from *almost* clear white to *almost* red, but *never* reaches either extreme. Clover seed will remain in the soil for years, and then, under favorable conditions, germinate and grow. Has not alsike been sown on land where red-clover seed already existed, and the alsike germinated, and died of drought, while the greater size of seed, and the greater depth of root, enabled the red to survive, and thus cause the purchaser to suppose he has been supplied with the wrong kind of seed? This is no theory. It *has occurred* right here on my farm, and also with my neighbors.

C. M. GOODSPEED.

Thorn Hill, N. Y., July 11, 1887.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

KIND WORDS IN REGARD TO THOMAS HORN.

FRIEND ROOT:—In the case of "Thomas Horn vs. duped customers," I think your proposition to settle his delinquencies a bad precedent, as there is certainly no just claim on you, that I can see. At the same time, I consider it a very generous offer on your part. If you are going to warrant and insure the honesty of advertisers in GLEANINGS, I think you will go under, unless you charge a premium extra. If you make reasonable search into the standing of each new advertiser before inserting his advertisement, I think it all in reason required of you. This is the second time, to my knowledge, that you have proposed to let yourself be mulcted on account of faithless advertisers. I would advise you to stop right here now, and insert, in large letters, at the head of advertisements, in front and back of GLEANINGS, that you will not hereafter pay any delinquencies of advertisers—that you take proper and reasonable care to find out their standing; and having done this much, you will no longer assure and defend.

C. GARWOOD.

Baltimore, Md., July 19, 1887.

Friend G., I am very much obliged to you indeed for your kind words and kind counsel. I know it is, in one sense, establishing something of a precedent; but in this case it seems pretty evident we were taken in by a bad, unprincipled man. For a long time I had so much charity for him that I believed he was simply unfortunate, or lacking in judgment. The evidence now is, that he is untruthful; and a man who will lie, will, as a general thing, steal, sooner or later. If it is true, then, that I unconsciously permitted a liar and thief to occupy our advertising pages, I feel somewhat responsible. These are hard words I am using, I know; and if they come to the eyes of Mr. Horn or his friends, and they show me I am mistaken, or too severe, I am ready and willing to take them back. If one of our advertisers should, by lack of judgment or the force of circumstances, make a business failure, I should not propose to pay his debts for him; but where I am satisfied I have let a bad man impose upon our readers, I feel better to shoulder the responsibility. I want to do what is right, and I have found it an excellent rule to make it a point to do a little *more* than what seems exactly right. In this way we make allowance for the selfishness there is in even the best of us.

TWO QUEENS IN A HIVE.

Last spring I bought a colony of hybrid bees from a neighbor. I removed the old queen, and inserted a queen-cell. In course of time I had a nice tested queen which I shipped to a customer. I then removed a queen that had her wing cut off, and introduced her in the colony from which I sold the queen. It was hard to get the bees to take her. After being caged about a week, I saw it would be safe to let her out, so I put a plug of the Good candy in the cage so they could eat her out, and closed up the hive. I took sick and didn't get to look after her for a couple of weeks, then I opened the hive.

The first frame I took out had a nice young queen on, which was laying, so I put her back, thinking they had killed the queen that was clipped. The other day I wanted an untested queen for a customer. I went to that hive, and commenced taking out the frames at one side. To my surprise, there was my queen with her wing cut. I took out the rest of the frames, and at the other side of the hive was the other queen, both laying right along. I have often had two queens in one hive, when the one was to be superseded on account of old age, but I consider this a rare occurrence; for the queen that has her wing cut, that is in the hive now, is only one year old—a good layer, and as fine a queen as you want to see, and there are no signs of their superseding her.

C. M. HICKS.

Fairview, Md., July 20, 1887.

The fact you relate is not so very uncommon, especially when the second queen was raised in the hive with the old queen. Only recently we had a colony which had had two queens in the hive for two months. We do not know how much longer the state of domestic affairs might have existed; but needing an extra queen for a queenless hive, we removed one of the queens.

SUPERSEDING QUEENS; A QUESTION.

Four years ago I bought three queens from I. R. Good, and two of them died; but the other lived till about a month ago, and proved to be a very prolific one until this spring. I noticed that the colony did not recruit as fast as it should, therefore I supposed the queen had died, and I opened the hive and made an examination and found her apparently well. But I noticed that the brood and eggs she laid were very irregular, and not very much of it. I also noticed that the bees had prepared cells ready for her reception, but she would deposit an egg only here and there over the combs. I did not like to kill her, so I thought I would wait a little for further developments of the case. About the 1st of June a friend of mine came to see me and I told him about it. He said I must be mistaken about the queen being alive; and to satisfy him that I was not, we opened the hive and found her. But here came the surprise to us both—a colony of about a quart of bees, with cells, started as though they were going to swarm. The queen was still laying; but we noticed that she was not well. Her wings looked as though they had been singed by fire, and she looked very stupid, so we closed the hive to wait for further developments of the case, and see if they were going to swarm or not. The queen-cells looked as though they were about five days old at the time. In about ten days I opened the hive and found a fine young queen hatched, and the rest of the queen-cells torn down, and the old queen lying at the entrance of the hive dead. This young queen has been laying some time, and the bees are working with a will. But heretofore, in the later days of the old queen, the bees were almost dormant. What we want to know is, if the queen knew that she was going to die, and had the bees form queen-cells, and she deposited eggs in them, for a young queen, or did the bees form the queen-cells and put the eggs into them? and, when they were sure of a young queen, kill the old one and throw her out of the hive? or did the bees and queen work together in order to save the colony?

Linkville, Ind., July 12, 1887.

J. KUNZ.

Friend K., your experience is nothing new, as you will see by the A B C book; in fact, it is the usual way for queens to be superseded, only you are wrong in thinking the young queen killed her mother. I do not believe they ever do this, for we have so many times found a young queen assisting the old one; and there have been so many reports in our back volumes of this same thing, in my opinion it occurs very much oftener than we know of. I have known old queens to do very good service, even when their wings were shriveled up, and when they moved about on their combs like an old gentleman or old lady. When queens begin to look old in this way, one or more cells are usually to be found; and the first queen that hatches usually destroys the other cells. Unless honey is coming in bountifully, the old queen may remain in the hive several weeks or even months, after the young queen commences laying; but sooner or later she becomes too feeble to hang on the combs, drops to the bottom of the hive, and is dragged out as any other useless piece of furniture.

BEES AND CHICKENS.

As I first mentioned chickens as drone-brood and drone-eaters some time ago, perhaps the readers of GLEANINGS are under the impression that I keep both in one yard, which is not the case, as I well know how much the disadvantages outweigh the advantages in so doing, as described by Grant Scofield a few months ago. But he has missed, or not yet experienced, the worst of the evils derived therefrom, and of which I should like to inform your readers. Last year I had several hatches of young chickens, of which some escaped through the fence. They soon made good drone-catchers and bee-eaters. Three got stung over the eyes, of which but one recovered, and two died in great agony after several days. I would have killed them to relieve them, but for the fancy stock. While I agree with all, that bees and chickens are nice to keep together, they should be strictly kept in separate yards.

Hammonton, N. J.

C. H. LUTTGENS.

FRADENBURG'S PORTABLE BEE-BRIDGE.

I have just come in from doing a good job for the bees in the apiary; and that is, putting a substantial bridge to each hive. I have always seen the lack of some good device for the bees which drop short of the alighting-board to crawl over, and get into the hive. But I have it at last. Take a piece of board, equal in length to the width of your hive, and from 6 to 12 inches wide. Bevel both edges from the same side.

Then drive 2 common wire staples on one side, one near each end. This is the bridge complete. Now take a hammer, 2 wire nails one inch long, and a pair of nippers. Go to a hive in the apiary and drive the nails in the front edge of the alighting-board, the same distance apart, and corresponding to the staples on the bridge. Leave $\frac{3}{4}$ inch of the heads out. Next take the nippers and bend the head up so as to form a hook. You can then slip the staples of the bridge over these hooks, and let the other beveled edge rest on the ground. You want one to every hive in your apiary. It is cheap, durable, and easily applied; and if the staples and nails are all driven by a gauge, all will be inter-

changeable, and readily taken off if desired, and no bee-hive will be complete in the future without one.

A. A. FRADENBURG.

Port Washington, O., June 30, 1887.

Friend F., your bridge for hive-entrances is exactly what we used ten or twelve years ago; and if I am not mistaken they were described in GLEANINGS. The warping of the boards under the sun and rain was one great objection. We put in cleats to prevent this, but they got to be troublesome. Whenever a hive was to be moved they would be flopping around; and when taken off they were thrown aside, and got to kicking about the apiary so that we finally banished them entirely, preferring the sand and sawdust, with salt sprinkled over the latter, when weeds threatened to intrude.

A GALVANIC CURRENT FOR ASSISTING IN WIRING FOUNDATION.

I don't think we in Australia can teach you much about bee-keeping; but we have a way of fastening foundation into wired frames, that I have not seen mentioned in any American books or journals. It is McEllery's method, and I inclose a clipping from the Australian *Bee-Keeper's Journal*, showing how to do it. It is a good thing.

H. LINDSAY MILLER.

Warrnambool, Victoria, Aus., May 16, 1887.

FIXING FOUNDATION IN WIRED FRAMES—MC-ELLERY'S METHOD.

The methods usually adopted for fixing foundation in wired frames are either to rub the wires into the foundation with a *grooved button-hook*, or some tool of the kind, or to press it in with "Blood's roller" (an American device), or, better, with Mr. Root's "rocking tool," an instrument like a portion of the periphery of a wheel, with a few sharp teeth on it. Each tooth is rolled on to the wires, and imbeds them in the foundation. Foundation fixed by any of these methods is apt to part from the wires and curl up in very warm weather, or when used for newly hived swarms. The fact is, there is no real union between the wax and the wires unless the wires are heated. I have tried several plans for doing this, but none so satisfactory as warming the wires with a galvanic current from a good large single-battery cell. The mode is very simple. Lay the foundation on a board which fits inside the frame; now lay the frame horizontally over the foundation, so that the wires lie nice and evenly on the foundation; take the wires from the two poles of the battery, one in each hand, and touch the two ends of each frame wire for a moment, one end with the positive and the other with the negative wire of the battery, and the frame wire becomes heated, and melts its way down to the *septum* or *midrib* of the foundation; touch each wire of the frame in succession in this way, and the whole is fixed quicker than by any of the other modes, and so firmly that you can tear the foundation away only by piecemeal. If your battery is not strong enough to heat the wire the whole width of the frame, do it in steps, and you will find even then you can do it more quickly than by any of the other plans, with the satisfaction of knowing that the wires are as firmly attached as is the case with the foundation where the wires are imbedded during the process of manufacture.

WHAT BECOMES OF THE FEW REMAINING BEES AFTER HIVING A SWARM.

Some of my friends and myself have been discussing the question of what becomes of the few remaining bees usually left in the tree, or upon the limb, after hiving the young swarm that clustered thereon. Some claim that they return to the mother hive; others claim that just as soon as the young swarm find that they have a home of their own they will visit the tree, or limb, where they clustered, for several days after they have been hived, and

it is *my belief*, for the express purpose of calling in all *absentees* which may have been left, and they will return with them to the new hive. Now, Mr. Root, will you be kind enough to give us your opinion in regard to them?

E. B. RIPLEY.

So. Windsor, Conn., July 4, 1887.

It is my opinion, friend R., after considerable close observation, that the bees scatter and go wherever they happen to—into the parent hive if it is near by; if more convenient, into other hives, and sometimes, if the new swarm is located so near they can find it, they go in a body to join their comrades.

WHAT TO DO WITH POLLEN IN OLD COMBS.

Can you tell me what to do with combs that the bees have literally packed with pollen? They certainly have no use for so much, and it takes up so much room.

R. J. MATHEWS.

Riverton, Bolivar Co., Miss., June 23, 1887.

Friend M., it is quite a difficult matter indeed to get the pollen out of combs unless you can make the bees take it out for rearing brood; and in this way we have disposed of all we have had in our brood-rearing operations, many times needing even more. In our back volumes, plans have been given to throw it out with the extractor, after being softened with warm water, or by steaming the combs. It is a nice operation, however; for if the pollen is not warm enough it will not come out; and if you get the combs too warm, the wax will be so soft as to break them out of the frames.

EVIDENCE THAT KING-BIRDS DO SWALLOW WORKER BEES.

I notice in GLEANINGS, July 1st, page 514, in your foot-notes to J. T. McCracken's article, that you would like to hear from the readers in regard to king-birds swallowing bees. Some weeks ago there was a couple of king-birds sitting on a bush close to the house, and my brother had observed them catching some of the passing bees, and mentioned that we had better shoot them. I said I believed there were no shells loaded with fine shot, and so paid no attention to them for a few hours, when, on stepping out into the yard, I noticed them picking up bees rather too fast to suit me. I then went into the house, found one or two loaded shells, took out the gun, and shot one of the birds. Upon examination I found that it contained what I should have pronounced the remains of quite a number of worker bees. It may be that some of the birds get up to the business so well that they just catch the bees in their beak, and, after squeezing out the honey, drop it; but my opinion is, that very few birds are so highly educated.

Bluffton, Mo., July 13, 1887.

S. E. MILLER.

QUEEN-CELL PROTECTORS; THE BEVELED EDGE OR SQUARE JOINT, ETC.

I wish to report my luck with Doolittle's queen-cell protector. I have used them constantly this season in my apiary, and I will say I have the first cell to be destroyed; but I have lost more young queens after they had hatched from the protector, than by the old process; but I think the cause was, that the bees were not gathering honey, and they killed them. The first show of honey in sections was the 16th of June. I think the protectors are a prize to bee-keepers, as it is more quickly done, and

that is a great saving of time. The honey-crop will be small in this section, unless there is a very heavy flow from fall flowers. Bees do not swarm very much here. Out of 31 colonies, only 12 swarms up to date. They are extra strong in bees, hanging out in all kinds of weather.

Please do not do away with bevel edge of hives, as they are no account with a flat edge. I have them both. Give me beveled-edge hives and metal-cornered frames, and it is a pleasure to keep bees.

King-birds are a pest to bee-keepers. They destroy more queens and workers than all the toads. They do not swallow the workers, but simply take them, one after another, on the wing, until they alight, then they press out the nectar and throw the mass of bees out. This is a fact. I use a gun freely.

JOSIAH EASTBURN.

Fallsington, Pa., July 7, 1887.

NOTES AND QUERIES.

HOW TO MAKE AN UP-GROUND WINTER REPOSITORY.

I WISH to construct a cellar above ground, to winter my bees in, about 40 stands. I wish to make it of lumber, having double walls filled with sawdust. Will you please say how much space you would leave for sawdust? Would two feet be about right?

H. LATHROP.

Brownstown, Wis., July 20, 1887.

[Two feet would no doubt be an absolute protection against frost, friend L.; but I don't believe there is any need of such very thick walls. The house for wintering that we used for many years had only eight inches of space, and there was never any trouble by frost getting inside, that I remember of.]

DECOY HIVES.

Two instances of the same place being occupied by swarms coming year after year are reported here—one in a hollow apple-tree, the hole being stopped with a board, the other in a house.

W. M. BADCOCK.

Basking Ridge, N. J., June 25, 1887.

FAVORABLE TO FLORIDA.

I have good news for this part of Florida. We have had our gallberry bloom, and are having saw-palmetto bloom, with black mangrove and cabbage-palmetto to hear from. My best colony up to May 13 gave me 109 lbs. in $4\frac{1}{4}$ x $4\frac{1}{4}$ x $1\frac{1}{2}$ sections, and others are doing well. This colony has not swarmed this season; and, by the way, they are black, or native bees.

S. C. CORWIN.

Sarasota, Fla., May 16, 1887.

THE THEORY OF SWARMING.

What is the theory about swarming, further than overcrowding? When I was young I thought the young queen led out the young bees to establish a home of their own. We now know that the old queen leads out the old bees, and others that wish to follow. It seems unnatural for the old bees to pack up and abandon the product of their hard summer's work.

P. S. DILWORTH.

Allegheny, Pa., July, 1887.

[You are right, friend D. It does seem unnatural for bees to work for stores, and fight for the defense of these stores as they do, and then to voluntarily abandon it, and start to commence anew in an absolutely empty hive. But facts are stranger than fiction, as you have probably heard. This matter is pretty thoroughly discussed in the ABC book.]

CHICKENS AS WORKER EATERS.

On page 514, under the head of "Do King-Birds Swallow Their Victims?" I. T. McCracken claims that chickens do not eat worker bees. I will say here, that chickens do eat workers or drones. I have seen a chicken stand by the hive and catch the bees as they go in, laden with pollen.

Blackville, S. C., July 13, 1887. D. D. SLATER.

A STALK OF ALSIKE 5 FT. 7 IN. LONG.

I see a little talk in GLEANINGS about alsike clover. I will send you one stalk. This stalk was five feet seven inches long when first taken from the field. I have about $\frac{1}{4}$ acre, all of which will compare with this stalk. This is the pink-edged alsike.

A. E. GRIFFITH.

Copley, Ohio, July 12, 1887.

FURTHER TESTIMONY FROM PROF. COOK.

I have received a stalk of clover from Mr. Griffith, Copley, O., with the request that I comment upon it in GLEANINGS. 1. It is alsike clover; 2. It is fully 6 feet long and $\frac{3}{4}$ of an inch in circumference. A farmer just in my study says he had this year a field of alsike clover on low clay land, that yielded as heavily as any field of red clover he ever saw.

A. J. COOK.

Agricultural College, Mich., July 18, 1887.

WATER-LEAF.

I inclose you a specimen of what is certainly a remarkable honey-producing plant. What is it? Can it be cultivated to any advantage? Each stalk produces quite a number of clusters like the one inclosed. You will notice the bloom has been off for some days.

WM. IDEN.

Etna Green, Ind., June 24, 1887.

The specimen from Wm. Iden is water-leaf (*Hydrophyllum appendiculatum*).

EXPERIMENTAL STATION, per CRAIG.

A GOOD WORD FOR THE CARNIOLANS.

The Carniolan queen Dr. Morrison sent me last summer produces bees, the most gentle I ever saw; and they are great honey-gatherers too—as good as any we have seen, even the Syrio-Italians. They are a very strong colony in a Langstroth chaff hive; and while we were making a cistern, ground was thrown against them, and then we had to lift them and turn them around, which we did without smoke. No smoke or veil is required when handling them.

ILA MICHENER.

Low Banks, Ont., Can., June 27, 1887.

STRENGTHENING WEAK COLONIES.

Standing in my yard are 22 colonies, all of them good and strong. This is the way I make strong stocks out of weak ones. When I get a weak swarm I put it in a hive and fix it in as good shape as possible; then when another small swarm comes off I lay a newspaper in front of the weak hive, get my small swarm, put it on the paper, start them for the hive, and they go in and go to work, and I have a swarm of bees that even this year (for there is no honey in the white clover) fill their hive up in a week or ten days.

W. M. WEBSTER.

Kendall, Mich., June 20, 1887.

[Your plan will work usually, whenever the bees are swarming, friend W.; but unless there is a flow of honey, a great many times your reinforcements will be stung to death almost as soon as they approach the entrance. Better have your smoker in good trim, and watch them until you are sure they are well received.]

REPORTS DISCOURAGING.

NOT A SPOONFUL OF HONEY.

FROM the looks of a late GLEANINGS it would seem as if you had no one to help you keep up the department devoted to Reports Discouraging. Well, if that is the case we should like to help you out a little. We have not had a swarm to issue this season, and have heard of only one or two who did, and those were early in the spring from hives where the surplus honey had been left on over winter. We also hear that John Nebel & Sons and T. Anderson, two of the leading bee-keepers of this county, are faring no better than ourselves. Mr. C. H. McFaddin, of Clarksburg, Mo., reports the same thing. We have not had a spoonful of this year's honey.

Bluffton, Mo., July 7, 1887.

MILLER BROS.

The honey crop is a failure in this section. White clover failed, and no surplus from that source—only a little from basswood.

H. R. BOARDMAN.

East Townsend, O., July 12, 1887.

Bees are doing poorly here. Unless buckwheat and late fall flowers give us a flow of honey we shall have to feed to keep them alive through the winter.

T. T. DAVIDSON.

Parkersburg, W. Va., July 5, 1887.

The honey crop is a failure here. It will not pay one per cent on capital invested. I will give you the whys and wherefores shortly. All the whole State is in the same boat.

J. P. ISRAEL.

Olivehain, Cal., May 30, 1887.

POOR PROSPECTS.

Bees are doing but little here. No swarms yet, and none of my 200 colonies are making surplus honey. We are having extremely dry weather, with cool nights and north winds. We do not think we shall get any clover honey.

J. V. CALDWELL.

Cambridge, Ill., June 10, 1887.

THE WORST SEASON SINCE HE HAS KEPT BEES.

Bees are not doing much in the way of surplus honey, although there is an abundance of bloom, both clover and basswood. The weather has been most unfavorable since I have kept bees. Mine have not filled half a dozen sections to the hive; a little better in the boxes for extracting.

Morristown, Ind., June 27, 1887.

L. DYER.

HONEY SCARCE.

I see by last GLEANINGS that the honey crop is going to be a failure in a great many localities this year. There is no surplus here from clover or linn. Oats and corn are drying up with heat, and very poor prospects for any buckwheat honey. If we don't get rain soon it will be a failure. The demand for honey is increasing. I think 10-cent clover sections will be scarce this year.

Rimer, Pa., July 8, 1887.

S. HEATH.

ITALIANS AHEAD.

The prospect here is gloomy; drought—unmitigated drought—cold nights, no dew, pastures burned up; white clover bloomed ten days earlier than usual, but yielded no honey. I have only a few stocks of bees, all blacks but one. The blacks I shall have to feed. The Italian stock is filling one or two brood-combs, and may live. The Italians rise earlier and go to bed later than the blacks.

J. HAMILTON.

Beason, Ill.

FAILURE OF HONEY CROP FOR C. C. MILLER.

Our surplus-honey crop has come and gone, and many colonies have less honey than when taken from the cellar. The worst drought ever known here has prevailed, and clover in some places is burned dead, root and branch. From what I can learn, the drought has extended over a large surface. July 1 the drought was broken by a glorious pour of rain; and, if too late to save the honey crop, it is some comfort to know it has saved the corn crop.

C. C. MILLER.

Marengo, Ill., July 7, 1887.

THE WINTER LOSSES OF BEES IN MAINE.

A word as to the honey prospects for the season in Maine may not be uninteresting to your readers. The season opened late, one of the hardest winters ever known lingering into spring. This fact caused a great many weak colonies of bees where all did not die outright. I think, as near as I can gather statistics of bees in this State, that the loss by dying might be set at about 40 per cent of the whole number of colonies; add to this the weak colonies, of which every apiary has a share, the loss, as compared with last season, is fully 50 per cent. As far as I can learn, bees wintered in the cellar, at a temperature of 40 to 44°, passed the winter in much better shape than where the hives stood on their summer stands. Bees which were in chaff hives, or otherwise thoroughly protected, wintered with much less loss than when unprotected. In my case, 9 out of 11 colonies came through the winter and died in May.

The harvest of honey from fruit-bloom has not been equal to the average one; the cause being, no doubt, the weak condition of the colonies. Last year, swarms issued as early as May 23, and kept it up through the close harvest of honey. This year, the earliest swarm I have heard of issued about the 12th of June.

In many sections of the State, the spring, up to June 20, was exceptionally dry, but little rain falling after the last of April. But the excessive amount of snow of last winter coming upon the ground before it was frozen any, and remaining till settled warm weather, gave us fields free from winter-kill, and white clover in abundance. The clover is just now coming fairly into blossom, and bees are at work upon it. We are hopeful of a bountiful honey-harvest from the clover.

L. F. ABBOTT.

Lewiston, Me., June 21, 1887.

PROSPECTS POOR.

Never, in the recollection of the oldest inhabitant, has there been so complete a failure in honey as I am bound to report from this section of country this season. There was a very profuse white-clover bloom, but almost an entire absence of nectar. Linden produced a very meager flow, and many colonies have not the wherewith to pass them over another winter, and will have to be fed, should we have no fall harvest. Last season, in an apiary of 49 colonies I harvested 472 lbs. of honey by Aug. 13; whereas, up to the present date not one ounce has been taken, and probably will not be very soon. This state of circumstances seems to embrace a large per cent of the State, and probably of the whole country, if we are to credit reports from various sections. I am constantly interrogated by friends and neighbors as to why our bees don't swarm; and my answer has been, "No honey in the bloom;" but the question comes here: Why

this absence of honey? I should like to hear friends Root and Cook theorize on this subject. Should we not be able to remedy the difficulty, it would at least be a satisfaction to know the cause. During the height of our clover bloom, when hill and valley were robed in white, bees were in a starving condition, and no nectar whatever coming in. To say that I am discouraged is not the fact in the case. I shall ever keep the guiding star of hope in view, believing it to be "an evil wind that blows no man good;" and though misfortunes come, we must make the best of circumstances, and wield them to our own good.

Spring, Ill., July 21, 1887. J. M. HAMBAUGH.

Friend H., so far as I am concerned I can not even suggest the reason why there should have been little or no honey in the white-clover bloom this year, and this, too, over such a vast expanse of country. It was not there, and that is all we know about it. The same thing has happened before; but never before has it been so general, the country over. It seems to me it is like inquiring why it rains sometimes and does not at others; that is, so far as I can see it is a matter entirely beyond our control.

BLASTED HOPES.

NO BREAD AND BUTTER AND HONEY, THIS YEAR.

YES, we have it terribly—never had it before. We can truly sympathize with those who have had a like experience. We started out in the spring with 48 swarms, all in good shape; yes, they were booming, and our prospects were bright. They were arranged in four rows in the apiary, seven feet apart each way. They looked nice in their little white cottage-roofed houses—were admired and gazed at by all who passed. I was proud of them. I was, for a fact, and here may be the cause of my present condition. As the season advanced, the drought came with a relentless grip. The hot sun soon used up what little white clover escaped the severe winter, and, in fact, all other flowers. As a result, to date, I have not a single new swarm nor a pound of surplus honey; and as I look over the apiary this morning there are three vacant places, and many more must follow soon. It is truly sad, thus to part with my little friends; but sadder still the pleading of my little grandchildren, Beth and Joe, who beseechingly plead, "Grandpa, we want some bread a' butte' honey," and I am powerless to give the honey. It was never so before.

But I am not alone. Others in this vicinity are in the same condition. Those who were near the linn had a slight show. We are not thus located. The prospect for fall flowers is exceedingly slim. We have not had a good rain since May, 1886. But I am bound to take up with friend Hutchinson's advice—"keep a stiff upper lip."

J. SWIFT.

State Center, Ia., July 18, 1887.

We like the ring of your words, friend Swift; even though they do sound forth Blasted Hopes. We sincerely hope and believe that you will "keep a stiff upper lip," and that in another year grandpa may be enabled to sweeten the mouths of the dear little ones with "bread a' butte' honey."

NOT ONE POUND OF HONEY.

At last I must go into Blasted Hopes. The drought in this part of Wisconsin has killed the clover, root and branch, so that our great honey crop from white clover, beginning June 1st, lasting 40 days, is an entire failure. Bees bred up strong on raspberries, but no swarming. I do not think there is one pound of honey to the hive in my yard, as we never have any fall yield here. I can not see any possible chance to save even one single swarm from extermination. There will not be one pound of surplus raised in this vicinity. E. A. MORGAN.

Columbus, Col. Co., Wis., June 20, 1887.

REPORTS ENCOURAGING.

THE BEST SEASON.

THIS has been the best season we have had in a long time, but the bees have swarmed too much. I presume I have had 300 swarms. Most of the first swarms have sent off from one to three. It has been a continual flow of honey since spring. If I could keep my bees from swarming I could make piles of honey. I shall make, or shall have made, about 6000 lbs., mostly in sections, 3 x 3—a little less than a pound, for which I expect to get from five to six cents above the market price of one-pound sections, or, at least, I have years before.

C. M. LINCOLN.

Rupert, Vt., July 20, 1887.

ANOTHER STORY FROM REAL LIFE.

CHAPTER I.—JUNE 15.

You say you want reports discouraging. I will give you one that takes the lead of them all. Last fall I had five swarms, and now I have none. My last one died the 14th of this month, from the want of stores. Bees are not making their living here now.

CHAPTER II.—JULY 15.

Bees are doing well. They are making lots of honey here now. The 9th of July there was a swarm came from some other place, and went into one of my hives that had bees in last year. They are doing nicely.

C. H. STEWART.

Altona, Col.

DOING THEIR DUTY.

Bees in this locality are doing their duty, gathering the sweets. This spring I transferred ten colonies from the old-fashioned hive to a hive that suits me some better. They have the lower part all filled snug and good, and are at work now filling the sections, which consist of 15 1-lb. sections on each stand. Basswood is just in full bloom, and a good prospect for a large yield of honey. I have alsike clover sown, 4 or 5 acres. I also have buckwheat in full bloom.

S. B. TEDROW.

Caledonia, O., July 2, 1887.

NO CAUSE FOR COMPLAINT.

There is no surplus from white clover, but we have had a good start in sections from alsike. Basswood is in full bloom, but the crop, I think, will be short. Teasels so far have not been touched. They will be in full bloom as basswood closes, and will give us at least 10 days additional. If it were not for this I fear I should be left with many partly filled sections. Taking the season as a whole, there is no cause for complaint.

C. M. GOODSPEED.

Thorn Hill, N. Y., July 11, 1887.

MYSELF AND MY NEIGHBORS.

The servant of the Lord must not strive; but be gentle unto all men, apt to teach, patient.—II. TIM. 2:24.

I BELIEVE we are, as a rule, in the habit of underestimating our neighbors; that is, we consider ourselves about right, but we see *their* faults and failings very plainly. I don't believe we have charity enough. I don't believe that, as a general thing, we pay enough attention to their good qualities and lovable traits—at least, I know that is the case with myself; but if there is any thing hopeful in the fact that I am beginning to see my own faults lately, as I never saw them before, I think I may take courage. A few days ago I undertook to remonstrate a little with my wife in regard to something she had said. She instantly replied that I was guilty of the very same thing; namely, hasty and thoughtless words. I told her she must not take me as a pattern. Her reply was, that I never need expect her to do any better than I did. It was said a good deal in jest; but it has troubled me since; that is, I have felt troubled to think that my example is not better. I am not only a professing Christian myself, but I take upon myself the responsibility of teaching. Many look up to me as a spiritual teacher; and I tell you, my friends, it is important that one who undertakes to be a servant of the Lord be gentle unto all men.

Now, although our neighbors are, as a rule, good people, and people who mean to obey the laws of the land, if not the laws of God, there are some exceptions. Sometimes we have neighbors who are very bad. What shall we do with them? "Let them severely alone," some may answer; but the Bible does not say so. On the contrary, it says we are to take an enemy and heap coals of fire upon his head. It says we are to love bad people, and do good to those who hate us. Well, I believe I have a good many times shown considerable grace in loving my enemies, and in doing good to those who hate me. Suppose, now, for instance, you have a neighbor who is guilty of crime. What shall you do in this case? The world says, "Have him promptly arrested;" and the Bible says, also, that a good many times the welfare of this very neighbor demands that he be arrested and punished according to law. We ought to be very, very careful however, I think, in such matters. If it is really true, that you have a neighbor who has repeatedly transgressed the laws, and proposes to transgress them right straight along, presuming on the good nature or easy way of those about him, no doubt he should be taught a lesson by prompt punishment. A servant of the Lord, however, should be very sure that he is right in deciding the law is the last alternative.

In our county jail I meet, every week, those who have committed crime. I sit down beside them, and, by friendly talk, get acquainted; and they, as a general thing, tell me plainly all about the matter, making due allowance, of course, for the different standpoints from which we see

things. Some of my good friends have censured me severely for going near these men—for showing sympathy or kindness for those who have behaved themselves so badly; and I have sometimes thought there may be such a thing as treating a criminal so as to encourage him in thinking his offense is a very light one—that he has been wronged and injured—that the laws, and the officers of the law, are too severe. My disposition, perhaps, would lead me to be weak in this respect. It is very hard for me to be severe and stern when I am talking with somebody pleasantly and quietly. When indignation fills my breast, however, I get harsh enough and stern enough, as everybody knows who knows me at all. In writing this last sentence that little prayer wells up, "Lord, help;" and I tell you there is need of that prayer often. Well, as I have said, a good many have wondered sometimes that I have patience, and could condescend to be pleasant and affable with those who are guilty of terrible and despicable crimes. Well, I go in to see those people, not as a judge, and not as one who is called upon to decide in any way whatever as to who is right or who is wrong. I go, simply as a spiritual adviser, and I go with the word of God in my hand, holding up Christ the Savior, to all, guilty or innocent. I feel that the Lord has called me to this kind of work, and I am happy in doing it. I believe these men are better men, even if they do not become Christians, because of the talks we have had together; because of the portions of Scripture I have read and applied with them; because of the Gospel Hymns we have sung together.

With all these years of practice in this line, you would naturally suppose me to be the proper person to talk with a criminal, out of jail as well as in jail. If a man should steal one of my horses, and I should catch him in the very act, you would naturally expect me to behave myself according to the teachings of the text; that, even though I made haste to recover my property, and make him give up his criminal intentions, I would be gentle and patient. My friends, I ought to be, I know; but I am afraid it would turn out a good deal as my good wife intimated. I am afraid I should not want anybody to pattern after me just about that time. Perhaps you ask, "Brother Root, what ought a Christian man to do, if he finds somebody in the middle of the night, attempting to get away with his best horse?" And this is the question that confronts me this bright summer morning. Most of you would say, "If he had any thing to shoot him with, he ought to shoot the horse-thief—that is, unless he gave himself up at once." Well, perhaps he ought to shoot the thief, rather than let him get away with the stolen property; but I think it will be a good deal better for me not to have any thing around to shoot with, at such times. If I could shoot a man, with a prayer in my heart for him at the time, may be it would be the thing to do; but I am afraid that Satan would put in a word, and, before I knew it, he would have the management of pretty much the whole affair.

To tell the honest truth, I am *afraid* of the prince of darkness. I am afraid of getting out of the reach of the Savior, for even one single moment. Yes, it is true, that, although I have taught and plead and urged men to turn from evil to that which is right and good, for years, I am afraid of *myself*.

Perhaps you wonder what has suggested all this. Well, to tell the truth, I have had a little experience in meeting crime in the wide open air, with no prison-bars about me or the criminal. He, of course, said he was not guilty, as almost all criminals do when they are in jail; but I had more of the facts in my possession than he was aware of. Was I gentle and patient? No, I was not. He was slow about restoring the stolen property, and tried to make out that it was not stolen, and that he ought not to be obliged to return it—at least not all of it. I talked penitentiary to him, but I did not talk it lovingly. I did not talk it as I talk with the friends in jail; I did not talk it as a Christian ought to talk it, and I feel ashamed of myself to think I behaved so poorly when God saw fit to try me in an open-air conflict with evil. It came on me unexpectedly, and my armor was off. I am afraid the poor fellow said, as he went away, "I have heard a good deal of talk about Mr. Root's Christianity, and of his great love for his fellow-men—even those who are unfortunate or bad; but I did not notice any of it shining in his countenance to-day." You may say, "Why, Mr. Root, even a minister of the gospel would perhaps do no better than you did. If he should find a man in the night, attempting to steal his horse, it is quite probable that he would be as harsh and severe as you have been, for the circumstances demand it. There is no time for soft words or exhortations to repentance, under such circumstances." To which I reply, that I am sure there is a better way than the way I did. I am sure that God's grace is sufficient for even such emergencies; and I am sure, too, that a man can act promptly and quickly; he can demand instant and immediate obedience of one who is caught in the act of committing crime, and yet he can do it with love in his heart, and with a spirit that may do much toward reclaiming the lost one. If you want light in this matter, read the life of Christ while he was here on earth. Notice carefully his way of meeting crime. Read, also, how Paul met wickedness and sin and crime. Keep in mind, that the loss of property is nothing compared to the loss of a human soul. I do not know how much has been done in this line, but it seems to me as if a vast field for Christian work were open here. I wonder if there is any such thing as a Christian detective. There are Christian policemen and Christian sheriffs and constables and marshals, and various other officers of the law; but my prayer now is, "Lord, help us all, in meeting sin and crime and Satan, in a way that will be most effective in disarming and robbing him of his power to ruin mankind; and, Lord, help us who profess to be thy servants, to be gentle unto all men—apt to teach, patient."

OUR ONE-STORY CHAFF HIVE.

ITS ADVANTAGES OVER THE TWO-STORY CHAFF HIVE.

I SHOULD like to say a few words in favor of your one-story chaff hive. I have used a good many different hives in my time, having kept bees for nearly 40 years. For the last three seasons I have been using your one-story chaff hive, with a Simplicity body and cover on top, as an upper story, and I consider this combination as making one of the best and most convenient hives now in use. And I will here add, that, with me, it has come to stay.

All bee-keepers who have ever used the two-story chaff hive, I think, are pretty unanimous in agreeing that it is one of the best (if not the very best) of hives for outdoor wintering that has ever been invented; but for a summer hive it has (in my estimation) some very objectionable features about it; and especially for raising comb honey on the improved or modern plan, now so extensively practiced by our most scientific bee-keepers.

The greatest objection that I have to the two-story chaff hive is, that it is always a two-story hive, which makes it rather inconvenient to get at the brood-chamber, and also in putting on and taking off our surplus arrangements for raising comb honey; but in the one-story chaff hive we retain all the good qualities and get rid of the bad ones, and get a much cheaper hive, and a more convenient one to handle and to work with. I have wintered bees in this hive (on their summer stands) for the last two winters, and they came out in splendid condition in every instance, and I don't see any good reason why it should not be just as good a hive to winter in as the two-story chaff hive. You may, perhaps, say, "Why not use our half-story (as we make it) in place of the Simplicity body and cover?" I will answer, Because of the following reasons: First, your half-story is too shallow; it will not admit of putting on more than one tier of sections at one time. Second, in using a chaff cushion or quilt over your bees in putting them up for wintering, you would be obliged to turn your half-story upside down, and drop your cushion or quilt into the half-story, and put it on in that way, which I consider a very poor one, for the reason that it gives you no chance to tuck down the cushion nice and snug, and make it all nice and tight in the corners of the hive, so as not to give too free upward ventilation, which I consider very important. A good many of our bee-keepers use loose chaff or forest-leaves in the upper story, for a winter protection; and with this material you would still be worse off with the half-story.

G. W. HARRISON.

Wharton, Wyandot Co., O., July 14, 1887.

Friend H., the points you make in favor of the single-story chaff hive agree with our experience. It has wintered colonies with us for the past three or four years successfully. If in colder climates it will do as well as the two-story hive it will surely take the lead. Our experience has taught us that a Simplicity body and cover is much better than the one-half-story cover alone for covering the small hive in winter. We should be glad to receive reports from other localities where these single-story chaff hives may be in use.

TOBACCO COLUMN.

THE EVIL EFFECTS OF TOBACCO ON THE SYSTEM.

I QUIT the use of tobacco more than three years ago, and I think it was the best thing I ever did. For the past ten years my health was very bad. I had palpitation of the heart for about ten years, and for about three years I was bothered with dyspepsia, weakness, trembling, and nervousness. I never thought that tobacco was at the foundation of all this trouble till something more than three years ago, when palpitation came very near ending my life. I had three of the best doctors in the town of Hickory, N. C., and they said there was but little chance for me. Before I finally recovered, the doctors said that it all came from using tobacco, and they told me to quit the use of it. I haven't used any since that time, and as a consequence my health has been better for the past three years than it had been for the past ten or twelve years before. I had used tobacco for twenty years or more, but I am very sure that I shall never use another crumb as long as I live, as I have enjoyed so much better health since.

Hickory, N. C., July 1, 1887.

JAMES DRUM.

Friend D., your letter reminds me of a certain relative who visited us about a year ago. He kept a drugstore; and when he was waiting for customers he used to chew and smoke. His health began to fail, and no one thought of the reason until finally he was taken one day on the street, with bleeding at the lungs. A long fit of sickness followed, from which he just made out to recover. His physician then told him that tobacco was the cause of it all. He broke short off, and passed through a terrible scene of mental suffering, much as intemperate men do when they suddenly break off from stimulants. At the end of one year, however, he became bright, happy, and well, and now laments that a great part of his life was made miserable and almost useless by being a slave to tobacco.

I have quit the use of tobacco; and if I commence it again I will send you the money for the smoker.

Beason, Ill., May 31, 1887.

J. HAMILTON.

I have quit the use of tobacco. If I ever resume the use of the weed I will pay you for the smoker.

Danville, Ind., May 22, 1887. G. W. MCPHEETERS.

I used tobacco for two or three years, but have quit for over a year. If I break my promise I will pay you for the smoker.

C. F. ANDREW.

New Salem, Ill., May 10, 1887.

If you will send a smoker to me I will quit the use of tobacco; and if I ever use it again I will pay \$5.00 for it.

A. D. BENTON, JR.

Benton, Ind., June 5, 1887.

We need a smoker; and Henry says if you will send him one he will quit using tobacco; and if he does not, I will make him pay for it.

J. UMMEL.

New Goshen, Ind., June 2, 1887.

HAS USED TOBACCO 40 YEARS.

I smoked and chewed tobacco for over 40 years. I have quit it altogether, and will stay quit, or pay for the smoker, if you will send me one.

Bolivar, Pa., June 7, 1887.

W. REYNOLDS.

I have been an occasional smokers of cigars, but am going to give it up. If you send a smoker, I will pay you for it, if I commence the habit again.

Berlin, Wis., May 20, 1887.

J. W. COON.

I have used tobacco for the past thirty years, but will use it no longer; and if I do I will pay you the full or double price of the smoker.

A. W. BECKWITH.

Poquonoc Bridge, Conn., June 19, 1887.

I have quit the use of tobacco in all its forms. Please send me a smoker; and if I commence again I will send you the full price.

MRS. S. A. BOWMAN.

Wabbaseka, Ark., May 24, 1887.

My husband used tobacco 16 years, and has quit. Please send him a smoker. If he commences again I will send you the price of the smoker.

MRS. WALTER MCALISTER.

Eden, Ill., May 27, 1887.

I have quit the use of tobacco. If I ever again commence the use of it I assure you I will send you the 70 cts. for the smoker. But I don't think I ever shall.

E. REICH.

Greensboro, Ga., June 6, 1887.

I used to chew tobacco a good deal, but I have given it up. I shall be very much obliged to you if you will send me a smoker. If I begin to use it again I will send you the price of it.

Brightseat, Md., Apr. 6, 1887.

W. BARRON.

Friend B. F. Heashey has quit the use of tobacco for over two years, and he thinks he is entitled to a smoker. He says if he commences the use of it, he will pay for the smoker.

Ashland, O.

My father has quit tobacco. He used it for about 25 years. If you think he is entitled to a smoker, please send him one; and if he commences again I will pay for the smoker.

J. R. ALEXANDER.

Alexandria, N. C., July 4, 1887.

I have quit the use of tobacco, and will promise to pay for the smoker if I use the weed again. There are other bees kept in this vicinity, to whose owners I will recommend the smoker if I like it.

C. M. LEONARD.

Bridgewater, Mass., June 11, 1887.

I have been a user of tobacco for years. You have led me to see the folly of its use, besides the injury it is doing me. If I use it again I will pay for the smoker.

J. D. POWELL.

Green Ridge, N. Y.

Pa has quit using tobacco in every form, and is trying to get everybody else to quit. He has two stands of Italian bees, and if you will send him a smoker I will see it paid for if he uses any more tobacco.

J. S. BROWN.

River Side, N. C., June 1, 1887.

In conversation with Mr. Silas Holley, of Locust Grove, Fulton Co., Pa., he told me that he had quit using tobacco a short time since. I informed him that you would send him a smoker if he would promise to never use tobacco again. He said he would certainly promise. If you send Mr. Holley a smoker I will see that you get your pay if he begins again. I showed him GLEANINGS.

B. M. STAHR.

Washington, Md., June 11, 1887.

I hereby promise not to use tobacco in any form in the future, if you will send me a smoker; and if I break my pledge I am to pay you for the smoker.

Smithville, W. Va., May 31, 1887. S. E. SMITH.

I will promise you not to use tobacco after this date, if you send me a smoker; if I do, I will send you the money for it.

Randolph, Portage Co., O., June 20, 1887. W. A. LADD.

A USER FOR 37 YEARS.

I used tobacco 37 years; and on the last day of last December I quit, and intend to stay quit. Send me a smoker; and if I break over I will pay you for it.

LEVI S. DAVIS.

Andersonville, Ind., June 7, 1887.

I apply for a smoker for my husband. He promised if he got one that he would never use tobacco to smoke the bees, or any other way, again. If he does I will at once send you \$1.00 for the smoker.

Barron, Wis., June 1, 1887. C. M. HANSEN.

I have given up the use of tobacco entirely. It has been 32 days since I tasted any; and as I am a bee-keeper I take advantage of your liberal offer. If I get to smoking and chewing again, I will send you pay for the smoker.

T. E. REID.

Greensboro, Ga., June 1, 1887.

Below are the names of two young men who have given up the use of tobacco. If they are entitled to a smoker, please send them one. T. J. Webb, and Jesse Sexton. I have given up the use of tobacco; if I commence its use again in any form I will pay for the smoker.

L. J. WEBB.

Webbville, Ky., June 19, 1887.

I have two brethren in Christ, who, by the help of God, have quit the use of tobacco, and have promised me if you sent them a smoker they would pay for it if they used the weed again. I will stand good for them. Their names are Rev. J. D. Stringer, Dripping Springs, Hays Co., Tex., and Thos. Roundtree, same place.

J. H. MORRAND.

Dripping Springs, Hays Co., Tex., May 21, 1887.

A HARD FIGHT.

My father has quit the use of tobacco. He is now 51 years old. He has not taken a chew or a smoke for two years. I heard him telling a neighbor to-day that it was the hardest fight he ever had, to break off. Please send him a smoker as a pledge; and if he ever takes to the use of it I will pay for the smoker.

W. HENDERSON.

Roney's Point, W. Va., May 19, 1887.

"AFTER A SEVERE STRUGGLE."

I notice through GLEANINGS, that you make a remarkable offer to those who will abandon the use of the "filthy weed." I have been a great user of tobacco, but have given up the habit, after a severe struggle. If you will send me a smoker I will promise faithfully to pay you for the same, should I fail to "hold out."

WILLIAM WEST.

Galena, Md., May 26, 1887.

Mr. John Dunn, of this place, has quit the use of tobacco. Mr. Dunn came to my place last fall, to see me put up my bees for winter; and while looking on he said if he would have a smoker he could handle his bees better too. I told him how he could get one very cheap—by laying away his tobacco. He did not like to do that, but said he would try, and I am glad to tell you that yesterday

he came to my place again and told me that he had not used any tobacco since he had been here in the fall, and is willing now to pledge himself never to use it again. He also promises, if he ever uses tobacco again, to pay you well for the smoker. Mr. Dunn is a young man about 20 years old, and stands high in society.

J. H. HIME.

McAlisterville, Pa., June 7, 1887.

I have a young man in my employ who has been addicted to the vile habit of using tobacco, for a considerable length of time. I told him that if he would discontinue the use of it you would give him a smoker. By considerable persuasion I induced him to leave off the habit. He has not now chewed any for a considerable length of time, and he says if ever he chews again he will pay for the smoker.

J. G. CHANEY.

Westboro, Clinton Co., O., June 7, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

A CAUTION TO BEGINNERS.

OUR honey-flow began to taper off about the 15th of July, and on the 18th it stopped abruptly. The aroma of unripened basswood honey was strong, and one could detect it quite plainly a rod or two from the apiary. The sudden cessation of the flow of nectar, and the aforesaid aroma of new honey, made the robbers so persistent that we could scarcely work over the hives, even with the tent. A day or so ago, as I sat at my desk, Mr. S., one of the apiarists, came in and said:

"Ernest, the robbers are acting pretty bad. I wish you would come and tell me what to do. They seem to be getting worse."

As we proceeded together, said I, "You must have given the robbers a sip of honey."

"Why," he said, "I just took off a wide frame filled with sections of honey, leaving one or two sections partially filled, on top of the frames. I then carried the filled sections to the honey-house. When I returned, a minute after, the robbers were boiling over every thing. I immediately closed the hive and threw a tent over it."

When I got to the scene of operations I found that there were several good handfuls of bees here and there, around different portions of the tent, tumbling over each other in their vain endeavor to effect an entrance through the mosquito-netting. Not to be thwarted, the little lovers of ill-gotten sweets had suddenly pounced, with all the energy imaginable, upon the entrances of the adjacent hives. The inmates of these hives, evidently astounded at such a pell-mell invasion, did not at first repel their foe, and for a few moments a general uproar seemed imminent. Over a weaker colony, Mr. Smith had placed another tent. The stock of tents by this time had run out; and in despair, Mr. S., as before related, asked for further instructions. He had, in fact, under the circumstances, done all that

could be done; for by the time I got there the bees of the neighboring hives had begun to apprehend the danger before them, and, in consequence, were fighting their invaders with as much vim as the latter had attacked them at the onset. I told Mr. Smith not to examine any more hives for the time being, but in the mean time to mow grass around the hives. While doing this, however, he was to watch the actions of the robbers.

For two days after it was well nigh out of the question to work with the bees at all, even with the aid of the tent. While the latter prevented the robbers from entering the hive for the time being, yet when it was removed they would pounce upon the entrance of the stock just examined, in the manner I have described. On the third day after the robbers had gotten their sip of the new basswood honey, by working carefully with the tent the work with the hives was resumed as before.

As is stated in the heading, this incident is not related for the benefit of veterans, but for beginners. To these latter (who probably form the major part of my readers) I reiterate: Do not, under any consideration, let robbers at this season of the year get a sip of new honey. If you find a few robbers hovering around just as you get your hive open, close it up immediately. Before opening it again, use your bee-tent. If you have no such convenience, do the necessary work with the bees at twilight or by lantern light at night. While old veterans might handle bees during the middle hours of the day at this time of the year, you certainly had best not try it.

Again, be sure that your honey, as fast as taken off, is put where no bees can get at it. If your honey is stored in a honey-house or honey-room, it is always safer to have it in such shape that, even should you or some one else leave the door open, the bees will be unable to gain access to the honey. If your honey is exposed in the room, and accessible to bees, some careless individual (most likely yourself) will forget and leave the door open. What follows, I need not describe in detail. Your first intimation of trouble is, that the bees are roaring in the air. The high key-note arouses your suspicions. Not greatly surprised, you step into the honey-house. In an open can of extracted honey you find about a peck of bees squirming in the honey. In one corner of the room is your section honey, uncapped, the honey which you had but yesterday admired and thought so nice. We have been in just these circumstances; and you, my dear beginners, are liable to get there too if you are not careful.

CLEAN SECTIONS.

We used both wide frames and T supers in our apiaries. While the filled sections from the supers needed little if any scraping, those from the wide frames had pretty heavy rings of propolis around the edges, and would require considerable scraping to get them in marketable shape. It is in just the crevice between the wide frame and the section that the bees seem particularly fond of depositing propolis. As Nature abhors a vacu-

um, so the bee abhors a crack. This, his instinct has taught him, must be filled up with his glue. The construction of the T super is such that the number of cracks and crevices is comparatively few. When sections from the T surplus arrangement and the Heddon crate come out so clean, it is a mystery to me why so many bee-keepers have to go and invent blanks in their section-crates, to cover the tops and bottoms of the sections. These blanks will form, when in contact with the sections, the nicest place for propolis to be secreted, and consequently thwart the object for which they were intended.

THE ALLEY TRAP AS A SWARM-CATCHER.

A correspondent wishes me to report my experiments with the Alley trap, as I promised last year I would do. In response to this request I will say that, just before the swarming season opened, I attached Alley traps to the entrances of a dozen or so of the strongest colonies in the Hyde apiary, of which I have made frequent mention. On all hives, whether portico or Simplicity, I found it necessary to secure the traps to the front of the hives, "toe-nail" fashion. I then directed the lady who was to watch for swarms, that, when one came forth, she was to fasten the trap (if the queen entered it) among the flying bees, on a rake. After being clustered, the bees were to be hived in the ordinary way. Some two weeks after, when I went down I saw that about half the traps, under the influence of the sun and rain, and the consequent shrinkage and swelling, had become partially detached from the hive — enough so to allow the bees to pass in and out, back of the traps. As queen-catchers, these, of course, were useless. Upon inquiry, Mrs. Hyde told me she had caught two swarms by placing the trap among the flying bees, and that the Alley trap, with these two, was a success. The other swarms, in consequence of the loosening of the trap, had to be hived in the good old-fashioned way.

FOUL BROOD TREATED BY CARBOLIC ACID.

In the treatment of foul brood recently we have been quite successful; and present indications seem to show that we are master of the situation. Our mode of treatment, as we now practice it, is as follows:

With a coarse comb—or, better, a wire brush—rake open all the brood-cells, whether diseased or not, in the affected colony. The bees will recap about half of it. With a weak solution of carbolic acid, spray thoroughly the bees, brood-frames, mats, and the inside of the hive. To make this solution, go to the drugstore and get some pure crystals of carbolic acid. Dilute this about three hundred times with hot water. When cold it is ready to use. In two days after the first uncapping and spraying, spray again, but do not uncap. In three or four days more, give them another dose, and so on till the bees have cleaned the "nasty stuff" out of the cells. Don't burn any more colonies until you hear from me again. I am experimenting, and do not wish to report the experiments in detail until next issue.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG 1, 1887.

Brethren, if a man be overtaken in a fault, ye which are spiritual, restore such a one in the spirit of meekness; considering thyself, lest thou also be tempted. GAL. 6:1.

OUR subscription list now numbers 7592. Still gaining, you see.

THANKFULNESS.

We are, here at Medina, just now rejoicing on account of a drenching rain, followed up by small showers afterward. How is it with you, friends?

THE WEBSTER FUMIGATOR.

In speaking of the Webster fumigator, the editor of the *Revue Internationale*, published at Nyon, Switzerland, seems to have had an experience exactly similar to our own, as given on page 756, 1886. Our proof-reader translates a few lines:

With colonies of ordinary disposition, the odorous air, expelled by the bellows, suffices to repel the bees, and cause them to fill themselves with honey; but on those which are aggressive it has no effect, and the addition of a few drops of ammonia, even, is not sufficient to quiet them.

BLACK AND HYBRIDS QUEENS.

In our price lists we have given prices on these, but we also state that we can furnish them only when we happen to have them. Well, as there are no blacks or hybrids now in our vicinity, we prefer not to furnish them at all. We might buy them, it is true; but the prices are so low during the summer months it does not pay for the trouble of handling. Those who want them should send orders to the names mentioned in that department, to be found in every issue.

AN INVENTION WANTED.

FRIEND TERRY's article has suggested to me that the host of keen, sharp inventors among the readers of GLEANINGS might furnish a man who has the time and talent to make a dumb-waiter that can be put in any house in a few hours, and made to work all right. I have in mind an arrangement that can be loaded on to a wagon, a good deal as our pumpmen load up pumps, go in the house, cut a hole through the floor, put the machine in in good working order, explain to the housewife how to use it, drive on to the next house, and so on. I presume the whole thing could be boxed up and shipped like a bee-hive, with printed instructions, etc. Who will make it?

CARP-PONDS, AND HOW BROOK FISH GET INTO THEM.

THE above puzzling question is answered by Milton P. Peirce, author of the book on carp culture, and editor of the *Journal of Fish Culture*, Philadelphia. Friend Peirce says that various water-birds, in moving from one body of water to another in

the summer, may carry the spawn of different kinds of fish on their legs and feathers. Turtles, musk-rats, and various reptiles, may also do the same. The spawn hatches, and the little fish take possession. Birds that frequent bodies of water are, as a rule, very shy, and thus escape observation, which is one reason why we don't see them oftener. The matter is fully discussed in a recent number of the *Journal of Fish Culture*.

OUR SWAMP GARDEN.

WHILE every thing is parched up with the drought, it is refreshing indeed to have one little plot of ground that seems absolutely exempt from drought. This is our swamp garden. The celery looks as bright and fresh this hot, dusty July afternoon (the 29th) as if there had been a rain only yesterday. The Early Ohio potatoes, planted the 15th of June, were looking as bright and fresh as the celery, and more than knee-high, and they are just coming into blossom. This wet swamp was all transformed into this luxuriant garden by a single underdrain which is perhaps 18 inches below the surface. The plants all have their roots in moist, black vegetable mold; and without a particle of manure, almost all kinds of vegetables are just booming. So much for reclaiming one useless bog.

THOMAS HORN.

PLEASE remember, dear friends, that our offer in our last issue was to our *subscribers* only, who lost money by sending it to Mr. Horn. We can by no means undertake to make good such losses to people who do not care enough about our journal to pay the regular subscription price. Quite a number have asked if the amount might be applied on other goods than bees and queens. We have decided to allow it to apply on subscriptions for GLEANINGS, A B C books at retail prices, or to advertising space in our journal, or to bees and queens at our regular advertised prices, and the latter may be taken now or at any future time, as you choose. Another thing, friends: I don't think I have written any thing encouraging the idea that I propose to make good any thing more than the money sent to Mr. Horn, in answer to his flaming advertisement of bees and queens, express charges prepaid, etc. This advertisement appeared in GLEANINGS when it ought not to have been accepted. Of course, I have nothing to do with other dealings you may have had with Mr. Horn, in the way of hives, extractors, giving him advertising space, or things of that sort.

A FRIEND IN NEED IS A FRIEND INDEED.

Two postal cards, which read as follows, have made me feel quite happy:

MR. ROOT: I see you offer to pay Thomas Horn's debts, or a part of them, at least. I lost \$6.90 in cash by ordering queens and bees of him, but can not accept payment of you, as I can not see why you should pay his debts. I hope all the rest of the friends will feel as I do about it, and not ask you to pay.
Sae City, Ia., July 23, 1887. WESLEY CHENEY.

MR. A. I. ROOT:—I am obliged to you for offering to pay me the amount due from Thomas Horn. You may cancel mine, as I do not think you owe it. I think if Horn will let you pay his debts, he must have been from the start what you indicated.
Reading, Pa., July 27, 1887. IRWIN D. ALTHOUSE.

I am very much obliged indeed, friends, for your kind encouragement. As we do not all see things alike, however, I prefer paying those who think I am responsible for having inserted such an advertisement. Especially do I value your kind words, because there have been quite a few rather unkind words in regard to this very matter.

CURING FOUL BROOD WITH PHENOL.

IN view of what Ernest has written in this number, I feel as if I individually owed an apology to the friends both in our own country and across the water, who have remonstrated because we were stubborn in objecting to drugs for the cure of the disease. It has been mostly if not entirely my own fault. I told the boys that we did not want any drugs or medicine about our bee-hives. Well, although we are not at present prepared to say that phenol, or carbolic acid (which we suppose to be the same thing) is a positive cure for foul brood, we have done enough to settle the question, I think, that it has a decided effect on it. Ten or fifteen colonies of the worst cases we have had in our apiary have had the disease arrested, at least for the time being. The bees cleaned out the diseased cells, and refilled them with good brood. This good brood has been found, however, in only a few cases, where the disease appeared in only a mild form. We have done this much, any way: We have proved that the acid, for the time being at least, kills the fungoid growth, and it seems quite evident that, when we get sufficiently acquainted with the method of using it, it may prove to be an entire remedy. Destroying infected colonies by fire is at best a slow process; and with large apiaries like ours it is a question whether it will kill it out. Where a whole colony, however, is thoroughly sprayed with the diluted acid, we are inclined to think they will not communicate the disease to other colonies.

SPECIAL NOTICES.

GREEN'S SOLAR WAX-EXTRACTOR.

The solar wax-extractor mentioned in the last issue, is a substantial and well-built machine. It is the same as the one illustrated on page 28 of our price list. For the benefit of a few of our readers who have written about solar wax-extractors, we will say the price is \$3.00, with complete directions for using them.

GOODS FOR FAIRS AT A REDUCTION.

Inquiries begin to come in about prices on goods to be used for exhibition at fairs. According to our yearly custom we have decided to offer one each of the following articles at (25%) twenty-five per cent discount from highest catalogue prices, on the following conditions: viz.: 1. You must state in your order, as nearly as possible, the time and place at which the fair is to be held (and send us a premium list if possible), where you are going to exhibit the goods; 2. You will agree to distribute judiciously among bee-keepers, and those likely to become such, the catalogues and sample copies of GLEANINGS we send along with the goods.

A B C's of Bee Culture—all you can sell.

Bee-brush—either kind.

Alley's drone-trap.

Bee-entrance guard.

Bee and queen cages.

One pound of comb foundation of different grades.

Comb-foundation machine.

Purker's and Gray's foundation-fasteners.

Wire-imboder.

Honey-extractor.

Gray's or Simplicity feeder.

One of any style of hive we advertise, put up complete.

Perforated zinc honey-board.

One box of 500 sections.

Clark's smoker.

Solar wax-extractor.

THE OUTLOOK FOR HONEY.

Notwithstanding the fact that the new crop of honey is already on the market, we have disposed of more old honey within the last two weeks than we had sold six months previous; consequently our stock of old comb honey is nearly cleaned up. We still have on hand a large quantity of extracted honey, especially of California sage. We are selling this, and basswood in cases of 2 cans containing 60 lbs. each, at 7 cts. per lb., and clover at 8 cts.

Single can lots, at 7½ and 8½ cts. per lb., respectively. Small samples free on application. Prices are advancing all around, owing to the scarcity of the present year's crop, and we may advance in the near future.

CONVENTION NOTICES.

The Stark Co. Bee-keepers' Society will hold its next regular meeting in Grange Hall, over Farmers' Bank, at Canton, O., on Tuesday Aug. 9, 1887. Mark Thompson, Sec.

FOR SALE

An 80-acre farm in Franklin Co., Ill. About 60 acres in cultivation. 2 good wells, ½ mile from school, 3 miles from P. O., 5½ miles from Co. seat. For particulars as to price, address John W. Lillie, Ewing College, Ill., or to me here. 15rfd

JOHN A. LILLIE, Raton, Colfax Co., N. Mex.

FOR SALE OR TRADE.

12 colonies of Italian and Holy-Land bees in Root's chaff hives, 12 colonies in Heddon's hives. Free on board cars here. Hives new and well painted. All combs on foundation in splendid shape. If you have any thing to trade write me at once. 15rfd

S. C. KIRKPATRICK, Hodgenville, Ky.

UNTESTED DAUGHTERS FROM ONE OF Doolittle's best queens, only 50 cents each. Tested queens, \$1.00 each. 15rfd

I. R. GOOD, NAPPANEE, IND.

PURE ITALIAN QUEENS

—FOR 1887.—

Tested, \$1.00; Select tested, \$1.25; Imported, best, \$5.00. All my queens are reared by natural swarming now, and sent out by return mail. Write me for low prices on two and three frame nuclei with any of the above queens in each. Address

S. F. REED,

N. Dorchester, N. H.

PASTEBOARD BOXES

FOR ONE-POUND SECTIONS OF

COMB HONEY.



THIS box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 30 cts.; \$1.00 per 100; or \$9.00 for 1000; 10,000, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

Stanley's Little Gem.

An Automatic Honey - Extractor
FOR ONLY \$10.00.

A NEW MACHINE, AND JUST WHAT IS
WANTED BY THE MASSES.

Send for circular, with full description. Machines
sent C. O. D. if desired, with privilege to examine.

15d G. W. STANLEY, Wyoming, N. Y.

TODD'S HONEY-CANDIES sell well at Fairs—average
wholesale price, 16c $\frac{3}{4}$ lb.; retail, 30 cts. Mail sam-
ples, 25 cts. HONEY and BEESWAX wanted on Com-
mission, by ARTHUR TODD, 2122 N. Front St., Philadelphia, Pa.
15-18db

FOR SALE.—Over 100 colonies of bees, that have
averaged \$10.00 per colony for four years. With
good local supply trade. Situated in the county
seat of Uvalde Co. Correspondence solicited.
14-15d D. M. EDWARDS, Uvalde, Uvalde Co., Tex.

UNTESTED ITALIAN QUEENS.

Cells built in full colonies. Single queen, 60 cts.;
6 for \$3.25; 12 for \$6.00.

14tfdb I. GOOD, Sparta, Tenn.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our
usual rates. All ad's intended for this department must not
exceed 5 lines, and you must say you want your ad. in this de-
partment, or we will not be responsible for any error. You
can have the notice as many lines as you please; but all over
five lines will cost you according to our regular rates. Of
course, this department is intended only for bona-fide ex-
changes.

WANTED.—To exchange full colonies of bees in
8-fr. L. hives, for 75 lbs. light extracted honey,
or 125 lbs. dark, per colony. L. B. BELL,
Brecksville, Cuy'a Co., O.

WANTED.—To exchange 1 organett, 1 German ac-
cordeon, for bees by the pound, or full colony.
Make offers, and address S. F. REED,
13tfdb N. Dorchester, N. H.

WANTED.—To exchange a Given foundation
press, the size is for Simplicity frames, for a
bicycle. 141516d THOS. HARTLEY, Gilman, Ill.

WANTED.—To exchange High-Class Fowls, eight
varieties, for good type-writer or foundation.
Circulars free. 14tfdb A. H. DUFF, Creighton, O.

WANTED.—To exchange tested Italian queens at
\$1.00 each, untested 80 cents, and bees at 80 cts.
per pound, for a good lever watch. 1415d
S. C. PERRY, Portland, Ionia Co., Mich.

WANTED.—To exchange good colonies of bees in
10-frame L. hives, for a new organ, western
land, potatoes, or anything I can use. 14tfdb
J. V. CALDWELL, Cambridge, Ill.

WANTED.—To exchange bees (see ad.) for good
bicycle, caligraph, or Remington type-writer,
or candied honey. C. B. THWING, Hamilton, Mo.

WANTED.—To exchange Newfoundland dog pup-
py, four months old, weight 60 lbs., for Italian
bees in L. hives, or thoroughbred fowls.
15d Yantico Poultry Yards, Nutley, N. J.

WANTED.—To exchange for a 2-horse engine, coal
oil preferred, a large new Mason & Hamlin cabi-
net organ, bought from the factory last Christmas,
in most excellent condition. Send for full descrip-
tion of organ, and references. A. B. HERMAN,
15d Burnett's Creek, White Co., Ind.

WANTED.—To exchange full colonies of bees for
pure-bred poultry, or offers.
15d PHIL FISHER, Hannibal, Monroe Co., O.

50 C. M. Doolittle's Golden Italian QUEENS Now Ready.

Best select tested \$2 00
Tested 1 00
Untested 50
Send at once. Stamps taken.
15d L. L. HEARN, Frenchville, West Va.

For Sale!

16 H. P. UPRIGHT TUBULAR BOILER.
Complete, with heater, injector, steam and water
gauges, etc. Price on board cars, \$250.00. 12tfdb
WATTS BROS., Murray, Clearfield Co., Pa.

FOR SALE.—From 50 to 75 colonies of Italian
and hybrid bees in our 10-frame L. hives, with
the portico projections, or without. Frames are all
wired, and combs are perfectly straight. Price of
strong colonies, in good condition, as follows:

1 colony of Italians \$5 00
2 " " " 9 50
5 " " " 22 00

Hybrids, in correspondence with the above, will
be 50 cts. less. Satisfaction guaranteed. Further
information will be cheerfully furnished.

A. F. UNTERKIRCHER,
15d Manchester, Washtenaw Co., Mich.

BEE-KEEPERS

Will find it to their interest to write to the **Hub
Mfg. Co., New Hampton, Iowa**, and learn how
to keep their honey-houses clear of bees, flies, etc.,
at 8 $\frac{1}{2}$ cents per window. Information free.

FOLDING BOXES.

**Our Cartons for enclosing Section Honey are the best &
lowest priced in the market.** Made in one piece. With or without
Tap Handles. With **Mica** Fronts or without. In the **Flat** or set up.
Printed or not. Any way to suit. We are bound to satisfy you. We
have just put in special Machinery for their manufacture and are pre-
pared to fill orders promptly. **Price List Free, Samples 5c.**

14 oz. Glass Jars \$5.25 per gross, including Corks & La-
bels, 1-1-2 & 2 gross in a Case. Catalogue of Honey Labels free.

A. O. CRAWFORD, S. Weymouth, Mass.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdb

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens
which they want to dispose of, we will insert notices free of
charge, as below. We do this because there is hardly value
enough to these queens to pay for buying them up and keep-
ing them in stock; and yet it is oftentimes quite an accommo-
dation to those who can not afford higher-priced ones.

I will sell a few hybrid queens at 50 cts. each.
Safe arrival guaranteed. L. B. BELL,
Brecksville, Cuy'a Co., O.

I have some fine mismatched Italian queens to sell
at 50 cts., or I will exchange for a honey-extractor.
Satisfaction and safe arrival guaranteed.
MARKWOOD JERVIS, Maumee, Lucas Co., O.

I am requeening my apiary, and will sell hybrid
queens for 40c apiece, or 3 for \$1.00. Wing clipped.
GEO. L. FERRIS, Five Corners, Cay. Co., N. Y.

I have a few good prolific hybrid queens for sale
at 40 cts. each. I will also sell black queens at 25
cts. each. Satisfaction guaranteed.
FRED LEININGER, Douglas, Putnam Co., O.

I have 40 good hybrid queens (with clipped wings)
for sale at 35 cts. each; four to one address, \$1.00.
Queens raised in 1886. GEO. H. DENMAN,
Pittsford, Hillsdale Co., Mich.

Hybrid queens for sale at 50 cents each.
R. H. BAILEY, Ausable Forks, N. Y.

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Holy-Land Queens by Return Mail.

Untested, 75 cts., or \$7.00 per dozen. Bees, 50 cts. per lb.
GEO. D. RAUDENBUSH,
16d READING, PA.

FOR SALE. ITALIAN QUEENS

From Selected Mothers. Warranted, \$1. Select tested, \$2. Bees, per lb., 75c. 3-frame nuclei, with tested queen, \$3. Full colonies in Sim. hive, \$6. Safe arrival guaranteed. Fifteen years' practical experience.
16d CHAS. MCCLAVE, New London, Ohio.

FOLDING BOXES.

Our Cartons for enclosing Section Honey are the best & lowest priced in the market. Made in one piece. With or without Tape Handles. With Mica Fronts or without. In the Flat or set up. Printed or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. Price List Free. Samples 5c.

14 oz. Glass Jars \$5.25 per gross, including Corks & Labels. 11-2 & 2 gross in a Case, Catalogue of Honey Labels free.

A. O. CRAWFORD, S. Weymouth, Mass.

CHOICE Italian QUEENS

65 CENTS.

C. M. GOODSPEED, Thorn Hill,

Box 31, Onon. Co., N. Y.

BE SURE

To send a postal card for our illustrated catalogue of APIARIAN SUPPLIES Before purchasing elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,

Hartford, Washington Co., Wis.

2 tfd

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfid

UNTESTED DAUGHTERS FROM ONE OF Doolittle's best queens, only 50 cents each. Tested queens, \$1.00 each.
15tfdb I. R. GOOD, NAPPANEE, IND.

HONEY LABELS. Special Prices On Large Orders. G. M. GRAY, MEDINA, O.

FOR SALE OR TRADE.

12 colonies of Italian and Holy-Land bees in Root's chaff hives, 12 colonies in Heddon's hives. Free on board cars here. Hives new and well painted. All combs on foundation in splendid shape. If you have any thing to trade write me at once. 15tfdb
S. C. KIRKPATRICK, Hodgenville, Ky.

For Sale!

16 H. P. UPRIGHT TUBULAR BOILER. Complete, with heater, injector, steam and water gauges, etc. Price on board cars, \$250.00. 12tfdb
WATTS BROS., Murray, Clearfield Co., Pa.

UNTESTED ITALIAN QUEENS.

Cells built in full colonies. Single queen, 60 cts.; 6 for \$3.25; 12 for \$6.00.
14tfdb I. GOOD, Sparta, Tenn.

TODD'S HONEY-CANDIES sell well at Fairs—average wholesale price, 16c @ lb.; retail, 30 cts. Mail samples, 25 cts. HONEY and BEESWAX wanted on Commission, by ARTHUR TODD, 2122 N. Front St., Philadelphia, Pa. 15-18db

THE VERY BEST.

Select Italian queens to breed from, by return mail, only \$1.00 each. Full colonies also for sale. Address at once S. F. REED,
16-17d N. Dorchester, N. H.

Beautiful Italian Queens.

J. F. Wood wishes to inform the readers of GLEANINGS that he is now filling all orders promptly for those golden queens, that have given universal satisfaction to all his customers the past two seasons, at 75 cts. each. I use no lamp nursery. Do not fail to send for my 1887 circular. Address 14-15-16d
JAMES F. WOOD, North Prescott, Mass.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfid

ITALIAN QUEENS.

Bred from select mothers. Untested, 75 cts.; Tested, \$2.00.
5-16db H. G. FRAME,
North Manchester, Ind.

BY SENDING 30 CENTS

In stamps, you will get by first mail a **HANDSOME BOX** of note paper and envelopes **FOR LADIES** and containing new pen and pencil.

Address **GEORGE E. STEVENS,**
BOOKSELLER and STATIONER, CINCINNATI, OHIO.

PURE ITALIAN QUEENS.

Tested queens, \$1.25 each; untested 65c. each; 5 for \$3.00. All bred from select imported mothers. By return mail. 100 2-frame nuclei with untested queen at \$2.00 each.
11tfdb D. G. EDMISTON, ADRIAN, LEN. CO., MICH.

ITALIAN BEES AND QUEENS A SPECIALTY. Tested queens in June, \$1.25 each. Untested, after June 1st, 75c; six, \$4.00; twelve, \$7.50. Bees by the lb., 75c; half lb., 50c; 2-fr. nuclei after June 1st, \$2.00; 3-fr. nuclei with untested queen, \$2.75. Circular free. Address JOHN NEBEL & SON,
5-16db HIGH HILL, Mo.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey*.—We quote choice comb 10@12 cts.; latter is for choice white clover in good condition. Strained, in bbls., 4@4¼ cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted, in bbls., 4½@5½ cts.; in cans, 5½@6 cts.

Beeswax, 21 cts. for prime.

Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

Aug. 2. D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

KANSAS CITY.—*Honey*.—We quote new crop:
Choice white 2-lb. sections, 14
Dark 2-lb. sections, 11@12
Choice white 1-lb. sections, 16@18
Dark, 1-lb. sections, 12@14
California, 2 lb. white, 14
" 2-lb. extracted, 12@13
Extracted, new crop.
Choice white, 8@10
Dark, 5@7
California white, 8
" amber, 6@7

Beeswax, 20@22. Crops of 1886 exhausted.

July 28. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

ST. LOUIS.—*Honey*.—The old stock of nearby honey is well cleaned up in this market and we look for better prices on new crop, which, from our information, will not be over 60% of last year's crop.

We quote: Choice new white-clover honey, 1-lb. sections, 12½; good fair stock, 10@11. Extracted, cans, 6@7; bbls., 5@5½. Southern honey, extracted, bbls., 3½@4½. *Beeswax*, 21. Demand good.

W. B. WESTCOTT & Co.,
Aug. 10. 108 and 110 Market St., St. Louis, Mo.

NEW YORK.—*Honey*.—Honey has not commenced to come into this market yet, but if the present cool weather continues, we may expect shipments very soon. We quote, until prices are better established, fancy white 1-lb. sections 15@16
Off grades 1@2c per lb. less
Fancy white, 2-lb. sections, 12@14

Beeswax, 22@23.

Aug. 11. MCCAUL & HILDRETH BROS.,
25 and 30 West Broadway, New York City.

CLEVELAND.—*Honey*.—The market looks better than for several years. Choice 1-lb. sections of white honey sell as fast as it arrives, at 16c; 2-lbs. 14@15. Second grade, 13@14, but slow. Extracted 4@6. *Beeswax* 25.

A. C. KENDEL,
Aug. 9. 115 Ontario St., Cleveland, Ohio.

CHICAGO.—*Honey*.—Offerings light, yet sufficient to meet the demand, as the higher prices asked keep out speculations, few believing that it will touch any higher figure. The best grades white comb, 17 c in 1-lb. sections. Extracted, 5@8 per lb.

Beeswax, 22c. R. A. BURNETT,
July 21. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey*.—No new honey in the commission houses, and but little has been sold. All the city papers continue to quote it below actual prices received. Best white has sold from 12¼@14c.

Beeswax, 23c. M. H. HUNT,
Aug. 10. Bell Branch, Mich.

KANSAS CITY.—*Honey*.—A few cases new honey in market; 1-lb. comb we quote at 16c; no extracted. *Beeswax*, 18@22.

CLEMONS, CLOON & Co.,
July 30. Kansas City, Mo.

PHILADELPHIA.—*Honey*.—Honey not wanted yet, and unsalable.

Beeswax, quiet: Choice yellow, 22@23
Inferior dark, 20@21
White, 26@28
Aug. 10. PANCOAST & GRIFFITHS,
Philadelphia, Pa.

BOSTON.—*Honey*.—No change in honey.

BLAKE & RIPLEY,
Aug. 10. 57 Chatham St., Boston, Mass.

WANTED.—All the bee-men who see this adv't to send us one hundred pounds of 1-lb. and 2-lb. sections of white comb honey, as sample, by express, stating quantity, and price for same, cash, delivered in Kansas City, Mo. CLEMONS, CLOON & Co.
15-16d Cor. 4th & Walnut St's.

WANTED.—To purchase from one to five thousand pounds choice white-clover honey in one-pound sections. Crates to average about 25 lbs. each.

I. T. CARSON & Co.,
325 West Main St., Louisville, Ky.

ITALIAN QUEENS.

Reared from the purest and best home-bred queens, and the cells reared and hatched in full colonies. Untested queens 75 cts., five for \$3.50. Tested \$1.25. Safe arrival and satisfaction guaranteed. HARRY G. CAMP,
16d Winona, Col. Co., O.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3t16d

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice at many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange a Given foundation press, the size is for Simplicity frames, for a bicycle. 141516d THOS. HARTLEY, Gilman, Ill.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14tfdb A. H. DUFF, Creighton, O.

WANTED.—To exchange 20 full colonies of bees, in lots of 5, 10, 15, and 20, on Langstroth frames, bees are Italians and hybrids, for extracted or comb honey. MARKWOOD JERVIS,
16d Maumee, Lucas Co., Ohio.

WANTED.—To exchange or sell a few colonies of extra Italian bees. P. W. CORYA,
16d Moores Hill, Ind.

WANTED.—To exchange Pelham fdn. mill, 10 in., for "Acme" harrow or cultivator. J. P. MOORE, Morgan, Ky.

WANTED.—To correspond with parties having land to sell or exchange, which they know to be in a good honey location. Address 16d L. C. CALVERT, Poplar Flat, Ky.

WANTED.—To exchange one city building lot, 52 x102 ft., in St. Andrew's Bay, Florida, for bees, hives, or any kind of apianian supplies. Address 16d W. P. W. DUKE, Nettleborough, Clarke Co., Ala.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I am requeening my apiary, and will sell hybrid queens at 35 cts.

T. H. KLOER, Terre Haute, Vigo Co., Ind.

For Sale.—Three mismated Italian queens, bred from pure mothers. Safe arrival guaranteed; 40 cts. each. CHAS. MCCLAVE, New London, O.

I have a few mismated Italian queens of this season's raising which I will mail at 35 cts. each, or 4 for \$1.00.

FRANK M. BALDWIN,
Marion, Grant Co., Ind.



Vol. XV.

AUG. 15, 1887.

No. 16.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.50; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

FLAT-BOTTOMED FOUNDATION.

FRIEND W. Z. H. DECIDES AGAINST IT.

I AM inclined to agree most thoroughly with Dr. Miller upon this subject. Two or three times, in different years, I have experimented, in a small way, with flat-bottomed foundation, by filling alternate sections with that and the other alternates with Given. This same digging of holes, and tearing-down of the edges near the top of the foundation, always appeared unless it might have been during the height of a good honey-flow; and even then the bees would often gnaw and pull down one edge, so that the opposite edge would strike the side of the sections, and thus give the foundation a kink. I must admit, however, that, when the combs were finally finished, but few of these imperfections showed. The greatest objection I had against the flat-bottomed foundation was, that the bees drew it out more slowly, and did not finish up the sections as quickly as they did those having Given foundation; but my neighbors, Doane and West, used the flat-bottomed exclusively, or nearly so, and were so enthusiastic in its praise that I finally thought that perhaps the bees didn't like it so well; but when they had no Given by its side, with which they might make unpleasant comparisons, they might be better satisfied, and would work accordingly; and, as a result of my cogitations, I used the flat-bottomed this year exclusively. I wish now I had not. I wish I had used one-half Given. My experiments had hitherto been too much of a one-horse character, a class of experiments in which my faith is somewhat limited; and now, when I used the flat-bottomed foundation upon a large scale, I neglected to use any other with which to compare it. I feel like kicking my-

self every time I think of it. The faults I have mentioned were just as observable, however, and I believe I received less honey by its use, but I do not know it, and can not prove it. That the bees change the base of the cells, there is not a particle of doubt; and that the "fish-bone" is reduced to a minimum is also true, and that more sections can be filled with foundation for less money is another fact; but that all this puts more money into our pockets remains to be proved. All things considered, no foundation has given me the satisfaction that has the Given. I shall, however, use flat-bottomed foundation again another year, and I shall try to use it in such a manner as to enable me to prove something.

CLAMP WINTERING.

You, friend Root, ask if I am satisfied now just where the cause of my former failures lay, in wintering bees in clamps. Friend R., that word "failures" should be used in the singular, as I have met with only one failure since I began wintering bees in clamps several years ago. That failure was caused by putting too many in one pit and burying them too deeply. No, I do not think a clamp any safer than a good cellar, and I have continued the practice more for the desire of proving it a success than for any thing else. Yes, friend R., I have taken into account the difference in localities. I am speaking of my locality. Upon this point, please allow me to quote from a recent article of mine in the *A. B. J.*: "As we approach the equator, less protection is needed by bees, and finally a point is reached where chaff hives and cellars never come. Before this point is reached, however, there is another point where some protection is needed winters; where chaff hives and the various kinds of packing are probably a sufficient shield against the

cold; and by means of which our bees can be wintered to better advantage, and, it is likely, with no greater consumption of stores, than in a cellar.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Friend H., you speak of the Given foundation continually, but say nothing of that made by *rolls*; but I believe the latter is the kind generally in use the world over. If I am not mistaken, even Heddon, although so enthusiastic on the Given foundation at one time, has abandoned it; and, by the way, I don't believe he has ever told us just why. Will he please speak out? If I am not mistaken, a good many others who formerly used the Given foundation-press have *given* it up; and, in fact, at present there are no more Given presses made, that I know of. If I am mistaken, I expect, of course, to be corrected; but if I am not, why confine your remarks to flat bottom and to Given, or do you mean us to infer that the Given is so near like that made on rolls there is practically no difference? You say more sections can be filled with foundation for less money by using flat bottom. I think, if we try hard, we can make as many square feet to the pound as anybody wants, and with natural base; but friend Miller and some others think they don't want foundation running more than, say, about 12 square feet to the pound.—In regard to clamp and cellar wintering, I believe we now entirely agree; but with the experience I have had with the climate of Medina County, O., I should say we don't want our bees in clamps or cellars. Others may, however, like cellar wintering, and succeed best with it, even here.

HOUSEHOLD CONVENIENCES, ETC.

DR. C. C. MILLER TALKS TO US ABOUT CUPBOARDS, HANDY TABLES, AND OUTDOOR AIR FOR THE MOTHERS AND DAUGHTERS.

THREE or four years ago I put in my leisure time one winter at a bit of carpentry. At the back end of the house was built on an addition for a summer kitchen. Then this was prolonged to make a honey-room, with no partition between the honey-room and the kitchen. This winter of which I speak, I got some flooring and studs, and put up a partition between the kitchen and honey-room, also lined the walls of the kitchen with flooring, and ceiled it overhead with the same. Then on one side of the kitchen I built a cupboard that occupied all the room I could get between the corner of the room and the door, making the four cupboard doors run within an inch of the floor, and within 3 inches of the ceiling. This made a cupboard 8 ft. long, 9 ft. high, and 1 ft. deep. It is quite common to let a cupboard run to within perhaps two feet of the ceiling. This makes just so much space about wasted, sometimes worse than wasted, for it is merely a place to catch dirt. Better let it run clear to the ceiling.

The cupboard whose contents were to be removed to this kitchen cupboard had shelves far apart, measuring from 10½ to 14 inches in height. Instead of taking this for a pattern, I measured the actual depth occupied by the articles on the different shelves, and made the new shelves just far

enough apart for their accommodation. Commencing 31 inches above the floor, leaving this space to set and hang different articles, I made the shelves from 6 to 14 inches in height, thus giving me 8 shelves instead of 4, as in the old. Now, there is nothing remarkable about this kitchen or cupboard. Any bee-keeper handy with tools could do the same work; but taking the two together, and my wife would rather give up any other room in the house. She says that I can not realize how many steps are saved by the present arrangement. Formerly the dishes had to be carried through the dining-room to the kitchen, and back again to the pantry, but now they are lifted from the cupboard to the table and from the table back to the cupboard, with scarcely a step between. We bee-keepers are great for planning about our bee-work. If we had the housework to do, don't you think we should plan some to make the work lighter? and can we not do the planning, even if the queens, and not ourselves, do the work?

One day, on account of sickness, if I remember rightly, I undertook to skim the milk. There was no room on the shelves to skim it, and I had no choice but to set it on the floor or carry it out into another room. Next day I ordered a light table made to set the milk on for skimming; and yet, for aught I know, it had been needed just as much for years. It only shows that I was not as observing as I should have been. It occurs to me that, from what I have said above, some one may infer that we generally eat in the kitchen. The inference is an entirely correct one. When we have company we can use the dining-room; but for our little family the kitchen is plenty large; and although home made it is nicely papered, so that it looks as good as if bought out of a carpenter-shop. I much prefer to eat there, and thus save work.

And now I have a conundrum to propose, to which I should like one or more answers. What can be done in winter time to give to the women-folks a regular outdoor airing every day? I don't mean those who can afford to ride out every day. That may do for some, but for most it is not convenient, if not impracticable. And yet it is a serious matter for a woman to stay indoors day in and day out, and hardly ever get a sniff of outside air. Is there any thing they can be called upon to do, in the way of some appropriate duty that will oblige them to be outdoors regularly a certain length of time each day? They can bring in wood and water, but in many cases that is too hard work; and yet, since studying upon this question, it does not worry me as much as it formerly did to see a woman lugging in wood on a cold winter day. My wife having been brought up on a farm, she has quite a taste for poultry; and by careful selection had built up a beautiful flock of Plymouth Rocks. I succeeded in convincing her that there was no particular profit in them; and as it interfered with the bee-work she very reluctantly consented in the fall to give them up the next spring. In the winter, however, I found she spent so much time pleasantly outdoors with the hens that I changed my mind and concluded it was profitable to keep them. But all can not keep hens. What can they do? C. C. MILLER.

Marengo, Ill.

Friend M., if you had gone into the pantry when at our house, and used your eyes, you would have seen exactly the arrangement you mention—a cupboard opening into the

pantry on one side, and into the dining-room on the other. In regard to using the kitchen for a dining-room, we often use the pantry for meals; and it is always in the pantry that I get my supper Sunday evenings, after prayer-meeting. I rather enjoy it, too, for the room is so small we eat by twos, and Sue and I are generally the last two, so we have a little bit of Sunday evening alone by ourselves, just as we used to have a bit of Sunday evening all to ourselves about 25 or 30 years ago.—I agree with you in regard to the outdoor business. Let the women and everybody else have something to call them outdoors regularly every day all winter long. Poultry is certainly one of the best industries. A carp-pond close by might tempt them out to slide and skate, and I believe my wife would beat any of her girls in sliding, even now; but I fear that she wouldn't want to stay on the ice long enough to put on skates.

CUBA, AGAIN.

FRIEND OSBURN TELLS US SOMETHING ABOUT THE GREATEST YIELDS OF HONEY.

FRRIEND ROOT:—You wish to know what was our greatest yield from any one colony, and about how much said colony in its best days stored in one day. It would be impossible for me to give you a statement or record of what any one of our colonies did last winter; for my little son and myself being alone it was all we could do to take the honey as fast as it came in, and do what other work there is connected with the harvesting of a crop. But I can give you the result of one colony's work for 59 days while I was at San Miguel, three years ago this winter. Hive No. 423, from the 31st of December until the 27th day of February, stored 620 lbs. of honey. The yield per day was nothing to what colonies have been known to store; but taking the whole fifty-nine days, the amount secured will compare favorably enough with other large yields; for, in truth, it is a big yield. If my health is spared me, I shall take one more honey crop in Cuba (this winter), then I shall return to California; for my obligations to my children will not admit of my keeping them here any longer than this winter. I expect to be obliged to leave Cuba with a cherished ambition unsatisfied; i. e., taking from a given number of colonies (say 100) 500 lbs. to the colony. I think it is possible; and had it not been for the many ifs in the way last spring, my son being taken sick on the 7th of March, and the large increase we wanted to make (420 colonies from 80), I am satisfied I should have realized what I wished to; that is, 50,000 lbs. from 100 colonies. This winter our apiary will be so large that it will be quite impossible to keep the honey of any one colony or number of colonies separate.

Speaking a little further about large yields from single colonies, that system of reporting is wrong. While there may not be any injustice intended, it is apt to put too glowing a face on bee-keeping for a beginner, while the veterans know that such results are possible only when all conditions are favorable. You and I, Mr. Root, have been in the business some time, and we know that, when a colony fills their top combs every week (say 50 lbs.) week in and week out, it is good business, and there

are more colonies that will not do it than there are that will. But in an experience of many years it has not often happened that we have met with the exact combination for such large yields in individual colonies, and I am compelled to say that, when we have, it has always been hybrids.

Yes, I have used grass in the nozzle of my smoker, but I do not know that I got the right twist to it, for it never gave very good satisfaction. It would soon burn out, and the ashes and partly burnt grass would all be blown in the hive, which would cause the bees to make faces at such treatment; but I have much faith in the sawdust for fuel, although I have never tried it. I think, if it is pressed down hard, and dampened a little, it would work nicely. I will add one word more about burning green wood. After the smoker has been burning a spell and wants more wood, I press to one side the wood that remains in the smoker, and is partly burnt, and put the green sticks in the other side. That keeps the fire and charred wood close together; and by the time it is burned out, the green will be seasoned and burning too.

BEES MIXING.

I told you in my last article how close our hives sit to one another. Well, many of them are very strong, and, under the influence of this Cuban climate, lie out on the front of the hive, the alighting-board, and on the ground, and they mix and mingle together, until it would seem that they were all one family. Do they quarrel and fight? No, they seem to have a good time of it—a sort of old-fashioned quilting or husking bee. Whether they go into one another's hives or not, I can not say; but one thing I do know—they are not bad enough, under such circumstances, to kill another fellow's mamma.

PAINT.

After trying many of the mixed paints and white lead, we have at last settled down on zinc as giving us the best satisfaction.

GLEANINGS.

One word as to its being an "all-around journal." I think no well-balanced mind can find any fault with the make-up and the matter that grace its pages from month to month; and the subject, "The Water We Drink," I have been deeply interested in. I fully agree with you and Prof. Cook in what you say; and the article contributed by Geo. Thompson is worth more than the price of GLEANINGS for one year. It contains so much substantial good that every man, woman, and child should read it. It is just what I am heart and soul interested in.

THE WATER WE DRINK.

After three years' living here, my children and myself put up with water as best we could, such as comes from open wells, that the oldest man could not remember the time when they were cleaned, and from springs that run through pastures, and were the receptacles of decayed vegetation. I suggested to Mr. Dussaquet that we have a bored well of our own, and we had it. Need I tell you it is a bigger prize than was ever drawn at the Havana Lottery? The soil here is a stiff hard clay. After going down 20 ft. in this clay we struck water, pure and unadulterated. The hole is 2½ inches, and a 2-inch pipe put down, with a good pump. I will tell you how it is fixed around the top, to exclude surface water. For about 3 ft. from the top down, the hole is six inches across. We first began filling in around the pipe at the bottom of this 6-inch hole

with new sacking (gummy sack), tamping it down hard, then clay, to within one foot of the top; then water-lime, made into a stiff mortar, and rounded up around the pipe until it seems impossible for one bit of water to get in, or not until it is well filtered, at all events.

One word about sinks, slop-holes, and water-closets. A sink with a drain or a pipe to it I could never have about the house; the same with old slop-holes; and as for the water-closet with the old-fashioned pit under it, that would have to take itself off the premises with the old filthy pipe of the sink and slop hole. All these three abominations can be dispensed with, and are, I think, among our most intelligent people of to-day. A. W. OSBURN.

Havana, Cuba, Aug. 5, 1887.

Thanks, friend O., for your excellent report in regard to Cuba, and the immense yields of honey you get there. You failed, however, to tell us how much you received per pound for your great crops; and that, you know, would be quite an interesting item in securing the 50,000 lbs. from 100 colonies.—Thanks for your suggestions in regard to drilling for water; and I hope we may all of us come up to your concluding remarks. I don't see, however, the harm that slops may do if carried into the garden, even by pipes properly arranged so that the roots of growing plants may absorb the fetid matter.

DOCTORING WITHOUT MEDICINE.

A REMEDY FOR NERVOUS PROSTRATION.

I HAVE before told you something of my experience with nervous exhaustion when overworked mentally; and I hope, dear friends, you will bear a little with me in talking about my ailments, so long as I can tell you how I have triumphed over disease. When business is up to its highest notch, say just preceding or during the honey months, I almost always break down, or come pretty near it. At such times there are three things that usually wind me up and set me going. One is a good square meal; the second is getting out of the office and going out into the open fields, and the third is sleep. I have been in the habit of getting strength by either of these three methods which is most convenient. The fields cause me to neglect work, so I often push through my tasks as well as I can until dinner-time. If dinner does not restore me, a great many times I am obliged to go home and take a nap to keep from breaking down altogether.

Well, I noticed a good many times that, when I pushed ahead until dinner-time, by the time I was seated at the table I was so much exhausted that I felt like grasping a glass of milk, or something else nourishing, much as an intemperate man would reach for his morning dram before he could steady his nerves so as to dress himself. In fact, I would often sit down to a meal all in a tremor, and with a dizzy faintness. Usually I felt tolerably well about the time my meal was finished. Sometimes, however, I didn't get level, if that is the right expression, until half an hour afterward. At such times, although I had excellent dinners, they didn't

seem to sit just right. During the past summer I have felt great relief by taking a nap each forenoon or each afternoon; and finally I began to notice that, when business crowded so that these naps came just before meal-time, I could sit down at my meals without the symptoms of exhaustion I have mentioned. Then it occurred to me that Dr. Salisbury, of Cleveland, O., used to urge and almost insist that I should never eat a meal without first being rested thoroughly for twenty minutes or half an hour on a lounge or bed. He said it was far better to have a good sleep before eating; but if I could not sleep, lie still without sleep. My wife has urged this very point for years; but I have usually been so busy just before meal-time I could not get around to it. For some time back, however, I have been taking just half an hour's sleep before dinner and supper; and if any sort of patent medicine had ever given me such a lift in the way of health, it would very likely have been "boomed" about as well as I could boom it. The philosophy of it seems to be this: If you want a man to do a good piece of work, he should be well fed and well rested. Yes, the same is true, even of a horse. Well, Dr. S. declared it was a task for a weak constitution to properly digest a meal of victuals; and he declared further, that no constitution could digest food properly when it was exhausted and run down to the very last notch; and if any one attempts to get along in that way he will sooner or later find himself broken down entirely.

Now, then, ye tired housewives, remember this: You are not saving time by sitting down to your meals, so completely exhausted and worn out that the hand trembles with fatigue that raises the food to your lips. You will get along faster, and accomplish more, by taking the kind of rest I have told you of. If it seems to you impossible, and you are inclined to smile at the idea of a half-hour nap before dinner and supper, then I shall direct my appeals to your husbands, your sons, and your daughters. As you value the life and the presence of this patient, hard-working mother, make her take that needful rest, just as my wife and children have been making me use the good common sense God has given us all.

SHIPPING QUEENS IN THE PEET CAGE.

TROUBLE WITH THE GOOD CANDY.

I HAVE had trouble with shipping queens in the Peet cage, with the "Good" candy, and also have in mind the experience of another breeder who had similar trouble. With the best of care, sometimes a whole shipment would arrive dead. Probably only those who have had such experience know how discouraging it is. I now make the candy pretty thin (granulated sugar will do to make it with), and put a sufficient quantity of it in a small piece of cheese-cloth, and press it into the "feed-hole" and then put a sponge filled with sweetened water in the other. I do not generally put more than six bees into the cage and they can suck all the "juice" they need, out through the

cheese-cloth. I have had as perfect success, since using this plan, as I could desire, and I have mailed them quite far. I am indebted to Mr. G. D. Black, Brandon, Iowa, for the idea. C. WECKESSER.

Marshallville, O., Aug. 8, 1887.

I feel quite certain, friend W., that the trouble is somewhere with your candy. If you have noticed what we have said in reference to the matter, you will see that we insist on using only powdered sugar, or granulated sugar powdered up with a hammer, or, better still, a pestle-mortar, to a smooth powder. This will hold honey so the bees can get it, and they will eat it, honey and sugar both, and it can not possibly daub them when placed in Peet cages. We have tried almost all methods in the way of sponges, water, etc., but our success with the Peet cage and the Good candy is so much better than with any other arrangement we think we shall stick to it, and we use these cages by the thousand, as you may know.

OUR P. BENSON LETTER.

G. U. S. & G. B. B. S. M. CO.

JAN. 17.—In yoonyun there is strength. Wherefore I hev combined myself with four (4) uthers for the purpuss of maniafacturin bee-supplies of oll descriphsens. At a meetin of the stock-holders to-day the followin offasirs was elected:

P. Benson, A. B. S., President.

J. F. Wilsen, Vice-President.

W. T. Hutch, Seckitary.

C. Mills, Tresharer.

The Board of Directers is me and Jack Wilsen and Will Hutch and Charlie Mills and Gordus Stull.

The tightel of the corporashen is the Grand United States and Grate Britten Bee-Supply Maniafacturin Co. Thay was a fool meetin of the Board to-day.



MEETIN OF FOOL BOARD, JAN. 17.

JAN. 29.—Bizniss of the G. U. S. & G. B. B. S. M. Co. is jist a boominn. Met Will Hutch the seckitary, to-day and he toald me a order hed cum for a bee-vaile with 50 cents in postage stamps; and what shoold he do with the stamps. I took them and poot them in my pawket. A bird & a hand is worth 2 & a bush.

FEB. 1.—A stormy seshun of the board to-day. Charlie Mills, refurrin to the postage stamps, intimidated that I hed embezzelled the funs of the company, by takin them stamps in a syruptishus manner. I kindly but firmly informed him that his reesignashen wood be excepted. He retortured that me and the cumpenny cood go to thunder;

and with that he woektt off, and that was the last of him. Charlie alwaze was rather ruff, but then he never hed enny bringin up. The ballence of the seshen was harmoanuss.

MARCH 7.—To-day we got a order for a swarm of bees. The board met to consult whare to git the bees. Ole Miss Hoover, she that used to was Feby Roadman, hed 2 swarms and was handy by, but she wanted the pay rite down, so we cood do better to by of Scotch Marget, who was a mile and a ½ out. Me and Will Hutch was deputized to go after the bees, and we was to go next day at nite. Next mornin Jack Wilson cum over to git me to help bild a tirky-coop for Mary. Her tirkys kep a stray-in off to Perry Davuses. I told him I wood if heed take my place to go after the bees. So in the even-in him & Will Hutch went for the bees. Jack stood off at a respectable distants (he's ruther moddest) and gave instruxyens whare to plug up the bees. When all was sekewered thay started. The very 1st stop, Jack sez, sez he, "Thare's a loose bee, Will," and with that he dropt the hive and lit out, a pawin the wind with both hands. The minnit he dropt the hive, the bees begins to pour out onto Will, and with that Will gits mad and ups and kicks that thair hive into 10 thousand peaces. Will alwaze was a leetel hi in the temper. Naterrally thay was both mad, Will blamin Jack for droppin the hive, & Jack a blamin Will for not shuttin them up titer; and when I woodent take sides with both of them thay rezined.



MEETIN OF FOOL BOARD, MARCH 8.

MARCH 8.—To-day Gordus Stull told me I hed ot to of gone myself for the bees, bein president; & I wurd brot on another, & I woodent stand it & discharged him on the spot. Its all the better. Thair will be less chants for dessenshun in the board.

VENTILATING BEE-CELLARS.

Are We Sure They Need It?

DO WE WANT BEES IN A CELLAR AT ALL IN OHIO AND OTHER SIMILAR LATITUDES?

ON page 567 friend Hutchinson says: "Where is the man who *knows* that sub-earth ventilation, or *any* ventilation for a bee-cellar, is needed?" It is not very safe for me to be very positive about any thing that I think I know about bees, as there are so many chances to be mistaken; but I feel about as sure of the need of ventilation as I do of almost any of the points of bee culture with regard to which Bro. H would not call my knowledge in question. I do not suppose that, in the strictest sense of the word, W. Z., or, indeed, any one, doubts

the need of *some* ventilation. Bees, I suppose, never go through a winter without respiration; and for this, at least a small amount of air must from time to time be changed. But without any hair-splitting, I suppose those who claim no ventilation is needed, mean that we need take no pains to secure the very little that is needed, and that even through the walls of a hive may come that little, and in the closest cellar enough air will be forced through the little crevices to supply all needs.

I think it is true, that no cellar is made so tight but that, if the cellar is warm enough, some little change of air will be constantly taking place. Years ago I wintered 8 colonies in a cellar which was as tight as I could well make it. In ordinary language, the cellar had no ventilation whatever. Those colonies came through in the finest possible condition, and I suspect that many a man with a like experience draws the conclusion that no ventilation whatever is needed. He is right so far as he is concerned, for the little air forced through the cracks of the cellar is enough for the few colonies. But when I put 200 colonies or more in that same cellar, the case was materially changed. I made some provision for ventilation by providing exit through chimneys for the exhausted air. In the coldest weather this was generally sufficient. The bees at times became uneasy and noisy, the noise gradually increasing, and I concluded the bees were too cold. I put a wood fire in the cellar in the afternoon, letting it die out in the evening, and in the morning I found the bees perfectly quiet. This was done many times, and always with the same result. But, one thing puzzled me: Go into the cellar the morning after firing up, and finding the bees quiet, I nearly always found the thermometer standing just where it did before I put in the fire. I asked myself the question, "If the bees were noisy yesterday because the thermometer was at 40°, why does not 40° make them noisy today?" I finally concluded that the fire had increased the change of air, and the bees were quiet, not because warmer, but because they had better air; and to this day I have found no better answer to the question. The air is changed in a cellar, because the outer air, heavier because colder, forces its way into the cellar by means of its greater gravity to displace the inner, or warmer air. The greater the difference between the temperature within and without, the more rapid will be the ventilation. Now, suppose a warm spell comes toward spring, when the thermometer stands at 45°, out and in. These are the trying times; for the air, being of equal density without and within, ventilation ceases. At such times the bees become very noisy; and as soon as it is dark I open all windows and doors. Upon this the noise greatly increases; and to one hearing it for the first time it is something alarming. By morning, however, all is quiet, even if the bright sun is shining in the entrance of the hives. Now, on what other hypothesis can this be explained, than that the bees needed ventilation, and were quiet when they got it?

And now let me ask friend Hutchinson, "Where is the man who knows that ventilation for a bee-cellar, or, indeed, for any cellar, is *not* needed? Didn't you think it was needed when you put the wooden tube in your clamp? or did you have the tube solely to let down the thermometer? Admit the need of ventilation, and sub-ventilation is easily proven necessary in cold localities until some

cheaper way is found to provide fresh air at a sufficiently high temperature.

Mr. Root thinks it better, all things considered, to winter outdoors, and I think he is right. I think it better to winter in cellar, and I think I am right. But the climate of Marengo is not that of Medina.

Now, I should like to ask you, friend Root, why do you think your bees winter better out of than in the cellar? It can hardly be temperature, for you can secure any temperature desirable in the cellar. Is it because of the light? The cellar can be made light; and I may remark, in passing, that, if ever perfection is reached in cellar wintering, it is possible that no effort will be made to secure darkness. Do you prefer outdoors because bees have a chance to fly through the winter? This can be evened up by taking out the bees and giving them a chance to fly every time the outdoor bees fly; but nearly every one objects to this taking-out as unnecessary, if not injurious. I suspect that, in the final analysis, it will be found that the main difference is, that, outdoors, the hive is at all times surrounded by a pure atmosphere. But, friend Root, please say what *you* think is the why.

I think many of us will thank the editor for the useful hints in chapters 37 and 38 of "What to Do," and I thank you for calling attention to cerealine, which I had never before tried. It is a nice and convenient food; only are you not mistaken about five pounds for 16 cents? It costs more than twice as much here.

C. C. MILLER.

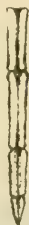
Marengo, Ill., Aug. 9, 1887.

Friend M., you have given me at least one new idea in the above, and it is in regard to the very question you asked me to answer. The great trouble in cellar wintering was where we had a good many colonies in one cellar, and when the temperature outside was about the same as inside. At such times the bees were uneasy, and the air in the cellar was very bad and close. I know the cellar at such times needed ventilation, not only for the good of the bees, but for the good of the people who lived over the cellar, and I tried to get it by opening the doors and windows during the night time. This made matters better, but it did not remedy the difficulty. With your explanation, I now believe it was because even the doors and windows didn't ventilate the cellar fully when the temperature was about the same outside as inside, and little or no breeze was stirring. Sometimes we have warm foggy spells here in February, and I have seen them even in December and January—yes, a whole week without a bit of frost. At such times I don't want bees in a cellar; and in regard to taking the bees out for a fly when the bees fly outdoors, this would be entirely out of the question, for most winters our bees have a good fly every month in the season.—In regard to the price of cerealine, Ernest made the purchase, and insisted he got 5 lbs. for 16 cts. Investigation shows, however, that the package held only 2 lbs. instead of 5. As the article is very light, even 2 lbs. makes a great big package, and I think it is a boon to humanity, even at 8 cts. per lb. I may remark that it costs 14 cts. per package at wholesale in New York. Possibly the price might be got down a little by buying in large quantities of the manufacturers.

A NEW BEE-ENEMY.

PROF. COOK TELLS US OF ANOTHER CURIOUS INSECT.

MR. W. J. ELLISON, of Stateburg, S. C., sends me a bug which sucks the blood and life from his bees. As I have never heard of this bug as a bee-enemy, I am much interested in it. Indeed, I knew of only one bee-killer among the bugs proper, before this one came; that is, the curious stinging bug, *Phymata erosa*, Fab., which is fully described and illustrated in my Manual, last edition, p. 322. This new bee-stabber—I will christen it the bee-stabber—as Mr. E. says it stabs the bee and sucks it dry—is known in science as *Euthyrhynchus Floridanus*, Linn. As would be inferred by its generic name, it has a very powerful four-jointed beak, which is shown magnified in the figure. From the specific name given by the great Swedish naturalist, Linnæus, we should expect it to occur in Florida as well as in South Carolina. Probably the one described by Linnæus came from Florida. This insect was also described by Th. Say, as *Pentatoma emarginata*. His description of this insect, like all his descriptions, is very accurate, as will be seen by looking at the figure which I send,



BEE-STABBER—*Euthyrhynchus Floridanus*.

which is drawn natural size. "From Georgia. Body purplish blue." This one is greenish blue. "Rostrum pale fulvous; thorax at posterior angles, with a cylindrical emarginate spine; scutellum having three orbicular fulvous spots; feet at base pale fulvous; beneath, under the rostrum, region of the feet, middle of the ventral base, anus, and triangular lateral spot, fulvous. Length one-half inch.

"Female.—Thorax with the anterior and lateral margins and longitudinal line in the middle dull fulvous; the two basal spots of the scutellum sometimes confluent. Length three-fifths of an inch." The one I have from South Carolina, as will be seen by the figure, is a female. Mr. Say received his specimen from Savannah, Ga.

The near relatives of this insect are often predaceous, and so are very valuable. Usually, however, few are so brave as to attack bees, and are wholly our friends, as they destroy many of our most destructive insect-foes. This one, no doubt, also does much good, and it is only to be regretted that he has this one sin to account for. I presume, however, that he will not draw very heavily on the apiary, and so from his general good character we may excuse this one dereliction. Should he so prey upon our bees that we feel the loss, then I could only suggest the same remedy that I have recommended for the "bee-hawks"—the large dragon-flies that attack and destroy our bees—to capture them by hand. I should be very glad if Mr. Ellison could send me a dozen of these handsome bugs. Indeed, I am glad to get insects from bee-keeping subscribers of GLEANINGS and all others, and will gladly de-

scribe, name, and will explain their habits. In sending insects, be sure to put them into a close strong box, so that they may not be crushed in transit. It is not necessary to give them any ventilation, nor usually to furnish any food. Caterpillars should have some of their food in the box with them.

A. J. COOK.

Agricultural College, Mich.

BEST HONEY FOR WINTERING.

O. O. POPPLETON GIVES US HIS VIEWS ON THE MATTER.

REPEATEDLY, during the past ten years or more, have correspondents to our bee-periodicals stated that they "reserve frames of sealed clover honey, to be returned to the bees for winter stores." Others have seemed to prefer basswood honey, while others have been fully as positive that fall stores were as good if not safer winter food. Only a few weeks ago, replies to a query in the question department of one of our journals showed a great diversity of opinion among several of our leading apiarists. Now, why all this diversity of opinion, and what are really the facts in the matter? And as this thing of obtaining the best winter food for our bees lies at the very foundation of successful wintering, I will give my views, hoping to draw out the ideas of others until some slight advance on our present knowledge be made. I will confine myself entirely to the question of best honey, not touching the feeding of sugar syrup at all, leaving that to those who have experience in the use of that kind of food.

For reasons not worth while to mention, a large number of bee-keepers will not or can not use sugar, so this subject of best honey can not be dismissed by simply giving the advice, "Use sugar."

During the first ten or twelve years I kept bees in Iowa, the crop of early or white honey was usually quite small, rarely being one-third of the entire crop, while the yield from buckwheat and fall flowers was abundant. For the last five or six years conditions have entirely changed, so that three-fourths or more of my crop have been white, mostly from the clovers, while the yield of dark or fall honey has been very light. With this change of the honey season came a change in the result of wintering, and the cause had to be investigated. I think that nearly all fruit-raisers have noticed the fact that, as a rule, a full crop meant also a crop of good quality, while a light crop meant also an inferior quality of fruit as well as small quantity. This seems to be a rule of very wide application, the conditions necessary to the production of a full crop seeming to be also necessary to the bringing it to its most perfect condition. This rule, which is so prevalent in the fruit kingdom, seems also to govern in the flower world, in all that pertains to the secretion of nectar. So far as I have observed for a number of years past, whenever any one kind of flowers yields honey largely, especially if the yield is long continued, the quality of the honey is almost certain to be good; while if the yield is light, the quality will be correspondingly poor. Wet and dry weather modifies this rule somewhat, but to a much less extent than I used to suppose was the case.

Several years ago, at the time when my harvest of white honey was so light, I noticed over and over

again that, if any colonies died during the winter, it was almost certain to be one which had had quite a quantity of white honey when going into winter quarters; and when I found any combs in the spring containing white honey, even if fully sealed, it was very apt to be more or less fermented, while fermented dark or fall honey was rarely if ever seen. This occurred so often that I finally adopted the rule of management, never to leave any light honey at all in the combs during winter. I stated, at one or more conventions, that I had adopted such a rule, but I didn't understand the reason for doing so as well then as I do now. As I have already said, some five or six years ago, the relative yields of early and late honey radically changed, and with it came a corresponding change in qualities, and the immediate result was a serious loss in wintering—not so disastrous a loss as I suffered before using chaff hives, but yet too serious to be at all funny—some 40 per cent one winter. This set me to studying on what was the cause of such a complete change, and I am now satisfied that the whole story can be told in the words, "A change in the quality of the winter stores."

I noticed, while extracting, that the fall honey was different from what I usually obtained. Had samples of these later crops and of former ones been submitted to experts, I have no doubt that each would have unhesitatingly pronounced one sample as having been taken from unsealed, the other from sealed combs, even when no such difference was the case. The truth is, the samples would have been entirely different when first taken from the flowers; and no amount of curing, either in or out of the hive, could have made them equal.

I have also noticed for a long time past, that the first yield from any particular flower, such as clover, basswood, buckwheat, etc., was almost invariably of poorer quality than the later yield from the same source would be. This is particularly true if the yield continues for some time, say from two to six weeks. It has been not at all uncommon to obtain a better quality of honey, both in body and flavor, from unsealed combs, filled two to four weeks after the commencement of clover harvest, than from sealed combs filled at the commencement of the same harvest. This fact wants keeping in mind when selecting winter stores.

The following is a brief summing-up of the opinions I have arrived at:

That there is no essential difference in the value of the different kinds of honey for winter stores; that the relative value of the different kinds of honey varies in localities and seasons; that the particular source which gives us the best yield of honey each season is usually of the best quality; also, that, where honey is used as a winter food, much better success will be attained when these facts are observed and acted on.

There are, of course, many other considerations to be taken into account in connection with winter food for bees, but I have confined myself closely to the point of what is the best honey for winter stores, and I hope others will give their views and see if we can not come nearer to an agreement on this point, which is so vital a one in connection with successful wintering. O. O. POPPLETON.

Hawks Park, Fla., Aug. 1, 1887.

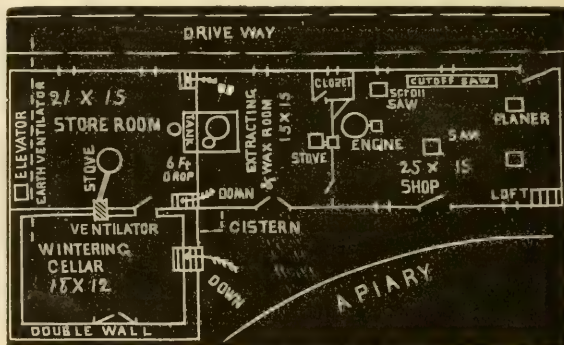
This is an important as well as an interesting question, and we should be glad to hear from others in regard to the subject.

ANOTHER PLAN FOR A BEE-HOUSE AND WORKSHOP.

SUGGESTIONS FROM J. H. MARTIN.

HAVING in view the enlargement of my buildings, and the addition of a shop, I have drawn up diagrams as below. My buildings now are nearly like the diagram, with the exception of the shop. The extracting-room is provided with a double door, through which a load of honey for extracting can be wheeled up close to the extractor. In this room I have a stove for rendering wax, etc. Near by should be a closet, or what I call a pantry, in which to set kettles, boilers, pans, and such utensils. When extracting I have all of the windows in the extracting-room darkened, except the one near the extractor. This is let down at the top, and a board 6 inches wide, having two holes five inches in diameter, into which are inserted two double cones of wire cloth, with a small aperture at the points, just large enough for a bee to pass out. I have found that bees would cluster upon the point of a single cone, and work through, while the double cone is effective. A curtain of thin cotton cloth hangs down from the cones over the window-sash, allowing all bees to easily crawl up and escape. Our room is kept very free from bees, even when bees are troublesome. Ordinarily we work with the doors wide open.

I now have a drop of 3 feet from the extracting-



MARTIN'S PLAN OF A BEE-HOUSE.

room to the store-room below. This drop should be 5 or 6 ft. down, instead of three, to allow us to place a 300 or 400 lb. tank, to connect with the extractor in the next room. This tank is not so much for curing honey as to allow any particles to rise that may get through our double strainers. A half-barrel is placed upon a balance under a honey-gate of the tank. The barrel is connected with the arm of the honey-gate, which closes the gate automatically when the barrel is nearly full. You thus save time. If you are called to dinner, and forget that the honey is running, it will not run out all over the floor. I now have to roll all of my honey in barrels up out of the store-room. A door is to be cut, and so arranged that a wagon can be backed up to it, and barrels loaded in with no lifting. Our store-room has been full of barrels, and such a door is necessary.

I now store my surplus combs, etc., over
THE WINTERING-CELLAR.

My proposed enlargement will give me a large room over both cellar and store-room, for storing these hives of surplus combs, empty hives, crates, sections, and empty barrels and cans. The door in the end of the building enables me to enter with my cart or a wheelbarrow. Access is also had from the extracting-room up a short stairs. In this large room I will store and crate comb honey. The doors and windows from the shop, extracting-room, and large store-room, all look out upon the apiary, so our bees are in view at all times. When we find it pays to put in 20 or more acres of honey-plants, and keep in one locality 500 swarms of bees, our buildings will need another enlargement, and it will be a very busy place.

This is not perfect, but it is good so far as it goes, and as far as bee-keeping is advanced at the present time. I should like any criticisms you may make. I think you can possibly make suggestions in regard to a planer, saw-tables, etc. The cellar, as shown, will hold 200 hives, put in quite close. Chaff packing is fully as successful with me as cellar wintering.

J. H. MARTIN.

Hartford, N. Y.

In our wood-working department we have tried to arrange every machine so that as the stuff is finished from one it will be handy to the next machine. It is a waste of time to have the machinery so arranged that the stuff will have to be moved from one part of the room to the other before completion. Your wood-working room seems to be well arranged, though where the room is small and the number of machines are few it does not make very much difference.

WHITE AND YELLOW CAPPING OF COMB HONEY.

THE COLOR OF CAPPINGS DUE TO THE KIND OF BEES.

WE have had a remarkable season here. Up to June 25 it looked as though we should have no surplus honey, and not even enough to winter on. Bloom was abundant in orchard, field, and forest, and yet there appeared to be little secretion of nectar up to the 25th. White clover came out early; and yet, with fields whitened by it, no honey came in more than to encourage development of brood. Too much cool wet weather in May, and too much rain in early June, was the cause, doubtless. Since the date named there has been a fine season, and honey of very fine quality from white clover and blue thistle, and chestnut bloom is very abundant also.

I mentioned last year the yellow capping of comb honey, and soon perceived it to be a trait peculiar to some bees. I am now quite sure of it, notwithstanding the opinions adverse of many to that theory. Some strains of Italians cap without an air-chamber, giving a water color to light honey, others a dull, dingy color. I speak now of natural work, not travel-soiled combs. I remember of seeing no reference to it in print, and should like to ask about it. In thirty years' experience with bees I never saw this yellow capping till two years ago. Last winter, I saw a large lot of yellow-capped honey in Washington City, from Pennsylvania.

My conviction, that it is an inbred trait, comes from observing that some bees always do it and others never, no matter what the sources of honey supply. Such is the evidence. For extracted honey it makes no difference. Can it be possible that bees in the same apiary, at the same time, from the same field, would so widely vary the product—one colony all yellow cap and another as white as snow, as a result of a different selection of food? I ask the attention of friend Doolittle to this.

One of the greatest advances made in late years is the invention of the wood-zinc honey-board. Its use simplifies and lightens the manipulation of comb honey, and I find its use most valuable. Whoever invented and presented to the public this honey-board deserves the thanks of the fraternity.

Charlottesville, Va., July 4, 1887. J. W. PORTER.

DR. MASON'S WASHING-FLUID.

HOW IT MAY BE USED FOR REMOVING PROPOLIS FROM THE HANDS; ITS OTHER USES.

FRIEND ROOT:—On page 346 you ask Mrs. Mason to give her "opinion" in regard to the washing-fluid (the recipe for which is on the above page) injuring clothes, or making them wear out faster. She has used the preparation four or five years, and is satisfied that it does not injure the clothes in washing as directed. Suppose our shirts, sheets, etc., do wear out a week or ten days sooner by using the fluid than they would without its use, it saves much time, and "wear and tear" of the nerves and muscles of those who do the washing. If the fluid were worth nothing for washing clothes, it certainly is very valuable for removing propolis from the hands, and I believe that lady bee keepers, professional men, teachers and others, who wish to have clean hands will be thankful for the recipe, if they once try it. I have improved some in the use of the fluid since I gave the description on the above-named page. I fill a pint bottle about a third full of it, and then fill up with water, and have the bottle near the wash-dish; and when I want to remove the propolis from my hands I pour a little in the wash-dish and wash with it. I also have a bottle of honey vinegar by the bottle of fluid; and as soon as the propolis is washed off, pour a little vinegar in one hand and wash with it; then rinse with water.

You say, "Now, are you sure the potash and borax make it any more effective?" Yes, sir; I am, for I have tried both.

Last week I found a new use for it. I have a Given press for making foundation, and have used a strong solution of concentrated lye to prevent sticking. When wanted last week, the lye solution was missing, and I thought perhaps the washing-fluid would do. I tried it as prepared for the hands, and it worked very nicely—better than the lye solution, and it does not injure the brush so much, and the foundation is not slippery to the hands. I like it better when it is about half washing-fluid and half water. I have used it several times this week with perfect satisfaction.

On page 381 of GLEANINGS for May 15, Mr. Dilworth speaks a good word for Basilicon ointment; and although you (and myself also) "don't believe much in medicines," I believe it is one of the best medicines, where such is needed, that I know of, and "should be in every house." Most bee-keepers

have the material for making it; and that such as wish may make it, I give the recipe: Rosin, five ounces; lard, eight ounces; beeswax, two ounces. Melt together, strain through linen (cotton will do), and stir constantly till cool. It is the best thing I know of for a burn. Soda or saleratus is good, but requires more attention.

A TOOL FOR SCRAPING KETTLES.



KETTLE-SCRAPER.

On page 258, April 1, Dr. C. C. Miller speaks of a "10-cent dish-cloth of iron rings" for cleaning pots and kettles. Please let me tell of a household convenience that our folks think a great deal of for that purpose, and they have several of different sizes. The accompanying diagram shows what they are. One of our boys cut them out of scraps of galvanized sheet iron, with a pair of common shears, and punched the holes, by which to hang them up, with a small punch. Mrs. M. says they are the best things she ever had for scraping kettles, pans, etc., and that she would not be without them. Every side and corner has its use.

A. B. MASON.

Auburndale, O.

We have never found any thing better than common starch paste lathered over the rolls to prevent the wax from sticking; but on certain days we do have trouble with the wax sticking some. We will try to give your washing-fluid a test on our comb-mill rolls. —Your kettle-scraper is easily made, and we have no doubt but that it would be found to be a very useful tool in the kitchen. Our wire dish-cloth is intended for the same purpose, but whether it would do its work any better, we can not say.

FREE PUFFS.

GIVING THE PUBLIC AN INSIGHT INTO OUR INDUSTRY.

IN placing our product before the public there is one method by which we can draw attention to the importance of our industry, and the agreeableness of the product, which is somewhat overlooked. We read of marvelous finds of honey, stories of the freaks of bees, etc., in our daily and weekly press, but seldom do we see an article useful to our interests. Short articles in the newspapers, an illustrated page in Harper's, Frank Leslie's, or the Graphic, an able article for the magazines, all of them could be made charming by enough of the marvelous or novel to draw attention. Describe the condition of the industry here, as compared with it abroad; the apiaries of New Zealand, with a description of them, would interest the public much more than a description of a precisely similarly managed apiary in the next town. The workings of the honey-extractor could be explained very well in an attractive description of a California apiary. The heading, "Honey by the Ton," will help to make it readable. I have some honey-labels with a description of the process of extracting printed thereon. A popular doctor in a neighboring town, after reading it, and tasting

the honey, astounded me by asking me if this was a machine of my own invention. I was most happy to inform him that it was not, and that there were many different manufactures of extractors, and that thousands of them were in use in the U. S., whirling out many tons of honey annually. Upon that he bade me adieu, with an incredulous smile, and doubtless upon arriving home told his wife what that crank from — tried to gull him with. The ignorance of 99 hundredths of the people on this subject calls for the action of hundreds of pens all over the country, with a good story, anecdote, or ludicrous situation, to make readable the instruction we have to impart. Then, and not before, will our product melt from our gaze by the thousands of tons.

J. H. LARRABEE.

Larrabee's Pt., Vt.

We agree with you, friend L., that some such means ought to be utilized. The articles designed for the purpose should be interesting and popular, leaving out all technicalities. They should show that tons of honey can be produced honestly.

GETTING BEES INTO SUPERS.

HOW TO PUT SECTIONS IN T SUPERS.

THE T supers you sent are very nice indeed. The fdn. fastener is a very handy little machine, and works just prime. I had a little trouble in getting my bees into the supers; but then I had been using wide frames when I received the supers. I took all the sections (56) out of the frames, and put them in two supers, putting all the filled ones in the top one, and those partly filled, and those with fdn. only, in the bottom, so you see there was considerable inducement for the bees to go right into the supers. I am using eight frames in the brood-chamber. They have been pretty well filled with brood, but as yet I do not know how they work in the outside row of sections, but will take particular notice when I put on a new super.

There has been a good deal said about inserting the last section in the supers. I find no difficulty. The way I do it is this: For convenience I will number the rows of sections from 1 to 7—1 being on the side of the super furthest from me, and 7 on the side next to where I stand. I first place the super on a flat surface, to keep the sections from falling through, in case the T tins slip out of place. I then put in my T tins, then row of sections No. 1, then No. 7, then 2, 3, 4, and 5, putting a separator after each row. Instead of putting in the 6th row I push the 7th back in its place—that is, the space left for the 6th row, leaving the last row to be inserted next to the side of super, giving one smooth side to work against. In putting this last row in I draw the super a little forward, so that I can guide the bottom of the section with my left hand, while I push down gently and evenly with my right. In putting this last row in I commence in the left-hand corner, making the last section come in the right-hand corner. I prefer this, for then I have two smooth, solid sides to slide the section against, so that, by using your left hand on the bottom, and your right on the top, pressing the section close against the side and end, you will find the difficulty very much lessened; at least, such is the case with me. To make the separators go in easy, I round the corners a trifle, and

find a greater improvement than if left perfectly square. I have tried to make this perfectly plain, and hope you will be able to understand it.

THEODORE JENNINGS.

Rye, N. Y., July 23, 1887.

Putting partly filled sections into the supers is one of the best ways of getting the bees to commence work above. This method has been recommended several times before.

THE OTHER SIDE.

DOOLITTLE'S EXPERIENCE WITH ROBBING.

IT is said, writers give the bright side of bee culture more largely than the dark, which I am free to admit; for when in a happy mood we are more fluent talkers than when sad or perplexed. As I have been perplexed and troubled for the past week or more with *would-be* robbers I thought perhaps not a few of the readers of GLEANINGS would be glad to hear about it. If any thing about bee-keeping makes me feel "dubious" it is to have robbers hovering all day long about every hive in the yard that they think there is a possible chance of getting into. About a week ago the little honey that had been coming slowly in stopped short off, so that there was nothing for the bees to do; while with every day the heat has been intense, which is just the time to put all the possible vim into a robber. Add to this the running of a queen-rearing business in which I was often sending out 30 to 40 queens a day, and the reader will take in the situation. The cover could not be gotten off a nucleus before there was a host of marauders ready to pile in, so that, had it not been for the bee-tent, I could not have done any thing at all, except very early in the morning and late at night, both of which times are very unpleasant to work with bees. The bee-tent would hold the robbers at bay while the hive was being opened and closed; but when the bees, kept outside by the tent, would flock in upon the removal of the same, in would go the robbers, when a fight would ensue, which, in some instances, would have resulted in victory for the latter, had I not promptly closed the hives to some of the weaker nuclei. Then I never before saw robbers so determined or cunning before. They would hover all day long at the entrance of a nucleus, five and six at a time, and alight down with fanning wings as a tired bee would do after being from home a long time, and in this way get past the tired guards. Again, when some of the guards would catch a robber, other robbers would catch hold of the robber also, and hold on, pulling back till said bee got away, when they would whirl around as if looking for another robber, and run into the hive. In this way they would worry out the guards of the smaller nuclei, and keep me on the jump all the while. Talk about the pleasure of bee-keeping when a man has to go on a jump from early morning till after dark at night, in the scorching sun most of the time, with the mercury up from 90° to 95° in the shade, then add this robbing perplexity, and you have something—*delightfully unpleasant*.

Well, there is a pleasant part to it after all, and that is what I wanted most to tell the readers about. The bright side again, you see. What was it could make such a time bright and pleasant? Just this: I beat the robbers! Coming off victor

makes days of struggle and hard toil look pleasant. From such a struggle, with victory, a satisfaction comes that can not be had through ease or indolence. In watching I often noticed that, when a robber slipped by the outside guards into a hive, he would often be led out by a bee from the inside of the hive. This set me to thinking, the result of which was the fixing of every nucleus and weak colony as follows: Heretofore I had the entrance to the hive right direct on to the combs. I now, as fast as I opened a nucleus, took the frame having the most honey in it and set it clear to the opposite side of the hive from the entrance, then the frame having the next most next to that, and the one having the most brood in it last, as I usually use three frames to each nucleus, keeping them (the nuclei) in full-sized hives. I now drew up the division-board and closed the hive. This left the entrance on one side or end of the hive, while the nucleus with its three combs was on the other. If a robber slipped by the outside and inside guards he now had to travel over a foot of space, all along which were scattered guards ready to seize him. If he succeeded in getting by them through stratagem he first came to the division-board; and if he got around that, the next thing was a comb of brood better protected with bees than any other part of the hive. The result is, that, although robbers still hover around, yet not one nucleus, since fixed in this way, has allowed a robber to get a load of honey, if there were bees enough in it to protect it at all. Of course, if I tried to open hives right along without the help of the tent, probably some robbing would be done; but with the help of the tent I am now once more boss of the situation in this the worst time of scarcity I ever saw in hot weather.

G. M. DOOLITTLE.

Borodino, N. Y., Aug. 3, 1887.

Friend D., we have had an experience in robbing this season, quite similar to yours, as you will see by the department of Our Own Apiary, last issue. I do not think that we have had a season when bees seemed more persistent and more determined to thieve than they have this. We have been obliged to use a tent exclusively, and one which was particularly bee-tight. In former seasons it made but little difference whether the tent had one or more holes or not; in fact, a few holes in the peak of the tent were quite an advantage; but this year we found that we had to put an entirely new covering over each tent, for we discovered that the robbers this year had learned the trick of going *down* the holes. We don't recollect that we ever had them do this before. By using the greatest care we think we have also come off victorious—at least, we have managed to make the robbers think there is no use trying, and so only a few stray bees will hover around the tent; but we find it necessary, upon opening a hive, to always use a tent. Our tents are so very light, and easily handled, we would just about as soon work with them as without.—Your plan of crowding the nucleus over to one side of the hive, so that the sentinels, or "guards," as you call them, are strewed all the way from the outer entrance to the inner entrance, we feel sure will work.—Beginners will take a little comfort in knowing that even one of our old veter-

ans are sometimes troubled with robbers; but in ordinary seasons, and with ordinary good care, we believe there is no excuse for letting robbing get started to any very great extent. Of course, a disposition at this time of the year, with part of the bees, to pilfer, can not be avoided; but we can prevent this pilfering leading to very bad results, as a general rule.

DRONE-GUARDS AND ALLEY TRAPS.

DOES THE USE OF PERFORATED METAL HINDER THE BEES ENOUGH TO DECREASE THE NUMBER OF POUNDS OF HONEY PER COLONY?

I HAVE a small apiary, 9 colonies, one mile north of town, on the creek—good pasture, basswood included. The pasturage is better than at home here, where I have 51 colonies. My home apiary is made up of what I consider good stock—pure Italians and good hybrids. The 9 colonies north are common stock, or Italians run down to wicked 32d (?) blood. On these 9 I placed the “guards” I purchased of you, to prevent swarms from absconding. On examination to-day I find some colonies with not *one* pound of honey in the brood-chamber, and all will want about 15 lbs. of syrup each, to winter them, while one good large colony of hybrids, in the same kind of hive, and in the same location, owned by a farmer, has the brood-chamber well filled with honey, the same as my home apiary. Here my colonies had “plenty and to spare,” to the extent that I divided (having no swarms) a few days since, and increased my stock considerably, giving *all* new colonies nearly enough honey to winter them, with plenty of brood and bees, and leaving some to spare in all colonies. From some of the latter I get some surplus also.

Now, all this talk centers in the question, Did those “guards” (which were partly clogged with dead drones) interfere with the workers, or was it the “blood” that told? The colony in the same location referred to did not have a guard on. If I were certain it was the “blood” which caused the “break” in this heretofore energetic and well-disciplined army, I would depose the present female incumbent and inaugurate a new dynasty.

Nevada, O., Aug. 5, 1887.

WM. M. YOUNG.

I am rather inclined to believe that both the blood and the guards were responsible for the difference in results. The guards which you purchased, we find, on looking up in our bill-book, were what we call entrance-guards, and are designed not so much to catch queens when they are about to issue with the swarm as to prevent drones from passing the entrance. During the time that drones are flying they should be removed occasionally, and cleaned of drones which may have become lodged in the metal. If you had used the Alley drone and queen trap combined there would be no trouble from drones clogging the metal. But even these must be removed occasionally to dump out the drones that may be “upstairs.” From our experience this season I am not sure but even the Alley trap (if kept at the entrance during the whole season) might so hinder the bees as to affect appreciably the honey crop.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

DO BEES EVER TRY TO DECEIVE EACH OTHER?

I HAVE been feeding up a weak colony, and robbers were attracted by the food. Some of them forced their way into the hive. I contracted the entrance to three-fourths of an inch, and then they defended themselves. After half an hour or so I noticed what I believed to be a number of robbers coming with just a little pollen on their legs, by which they expected, as I suppose, to gain admittance into the hive. Some with pollen on their legs were readily admitted, while others with just a little pollen would act just like robbers, by flying all around about the entrance, and dodging whenever called upon by the sentinels for the pass-word. Were these latter bees robbers?

Corn is in full tassel and pollen is plentiful, but honey is scarce. White clover, which is our main honey crop, gave us but little honey this summer, owing to the long severe drought in May and June. June 22d I sowed the bushel of buckwheat that I got of you, and on the 19th of July it began to bloom—just 27 days after sowing. The alsike clover seed I got of you was sown April 1st, and perished in the drought. I shall sow earlier next year. I have a thought of raising buckwheat in the future, instead of common wheat. It will give me pasture for my bees, and make more money as grain than wheat. We get from 10 to 20 bushels of wheat per acre, and get 60 cts. per bushel for it. Now, if buckwheat will yield 10 bushels per acre, and sell for \$1.00 per bushel, it will pay as well, or better, than wheat. Then, too, it is such a trouble to get our wheat thrashed out. They don't like to come to thrash unless you have 200 bushels or more—at least, they charged me \$15.00 to come and set a machine in my field. I want to get some instructions as to the cultivation and harvesting of buckwheat. No one here knows anything about it.

J. G. NANCE.

Bellevue, Ky., July 23, 1887.

Friend N., I have spent a good deal of time in trying to determine just the point you make; that is, whether bees have enough brains to attempt to obtain honey (not money) by false pretenses. Although appearances, as you have shown, would seem to suggest at first that they do, I think it is a mistake. The bees that had a little pollen on their legs did not place it there in order to make believe they were honest: they belonged to a class that had, by daily robbing, got uneasy and discontented. They were not ready for honest labor; but finally finding nothing to steal they put out for the fields for the purpose of gathering pollen, like the rest. The day, however, was hot, and the labor fatiguing—especially to bees that had had a taste of the excitement of robbing, and so they came back home with half a load, and flew about the apiary to see if there were not a chance for some excitement. Now, under such circumstances they would be seen trying hard to rob with little bits of pollen on their legs. Other robbers which you saw catching hold of robbers, seemingly just to make believe they were sentinels, were likewise of this class of demoralized old fellows. They were hanging around, as we sometimes see

human beings, with their hands in their pockets, sitting on hitching-posts; and as Satan always finds some mischief for idle hands to do, they were ready to pick and pull at anybody who came along. If any trouble is started, these people grab hold and make a pretense of being eager to restore law and order, trying to pass themselves off, as it were, for good honest citizens working hard for law and order, while the truth is, they are sneak thieves waiting for a chance to steal, where there is no danger of getting into trouble.

In regard to buckwheat versus wheat, if your land is suitable you ought to get thirty or forty bushels an acre, instead of ten. The crop, however, is quite uncertain, and it is a hard matter to lay down rules for the cultivation of buckwheat in all localities. The price paid for it is also quite uncertain. It is not nearly as regular as wheat. I should be very glad indeed to have a little treatise entirely on the cultivation of buckwheat. At the present time we have a crop of nice buckwheat in full bloom, and yet the bees scarcely notice it. In an adjoining county I saw a field of nice buckwheat in full bloom a few days ago. The proprietor had sown this expressly for his bees, but he said the bees didn't work on it at all. It may be because it is too early in the season.

TROUBLE IN TRANSFERRING.

I transferred a colony of bees into a Simplicity hive last evening. It was very weak, but had some honey and some brood. In about one hour after I had transferred them, the bees had nearly all left the hive. The queen was, or seemed to be, very much excited. She ran all over the combs. Now, will you please tell me what was the cause of those bees leaving the hive? Did I make a mistake in transferring them, or did they get discouraged because they were so weak? My wife and I transferred four colonies before, and had the best of success. She can beat me working with bees. She never wears a veil in transferring, while I have to wear one. N. F. CRIPE.

Montevallo, Mo., July 20, 1887.

Once in a great while, friend C., a colony will seem to be displeased with their new arrangements after being transferred, and under such circumstances the bees and queen will desert. It has been my impression, however, that the work was not very skillfully done when such things happen as you mention. I may, however, be mistaken. In your case the queen seemed to be alarmed and frightened, and she perhaps communicated her demoralized state to the whole colony. I have been a great many times puzzled to know where the bees and queen went to, but concluded they had gone into other colonies, but I have always been unable to find where.

THE MOSQUITO-HAWK, AND HOW THE BRAZILIANS CATCH IT.

I paid a visit the other day to a Portuguese gentleman who lives at Carlos Pass, in this county, and he told me how the apiarists of Brazil rid themselves of this terrible enemy of the bees, the mosquito-hawk, or dragon-fly. The method employed is to stick stakes in the ground throughout the

whole apiary, the sides near the top of the stakes being pierced thickly with holes about the size of a leadpencil. These holes are to receive small pins, about four inches long. These pins are covered thinly with a sticky substance called in Portuguese "gomo di igo." Now, when the bee-hawk seizes a bee he alights on the first twig near him, to eat his victim; and as these little wooden pins are a very inviting place for him to alight, he is almost sure to alight on one of them, and, twining his legs around the pin, is caught and held fast by the gomo, and is killed by the apiarist, and another coat of gum is put on the stick, and it is ready for another hawk.

Now, as almost all the damage done by these hawks is done an hour before dark, the apiarist can be on hand and kill nearly all that visit his yard; and as the hawk, on being caught, liberates the bee he has caught, I believe this plan is worthy of a fair trial. Will you please tell me if gomo di igo is bird-lime, and where can I get it? May be Prof. Cook can tell us how to make it. For stakes, the Brazilians use canebrakes or reeds, called "canista," or "pitto." The Cubans call it "caña brava."

W. W. WILSON.

Punta Rassa, Florida, July 25, 1887.

Friend W., I should think the substance is bird-lime, or something quite like it. Some years ago we discussed the matter of bird-lime pretty fully, and several recipes were given for making it. The idea seems to be quite sensible as well as ingenious; and where mosquito-hawks are a pest I have no doubt it would fix them.

THE WORKING OF THE MITCHELL HIVE; A PATENT MOTH-TRAP, AND HOW A FARMER WAS SWINDLED BY IT.

I am in a section of country where Mr. Mitchell has been selling quite a number of hives. Among the many small apiaries that I have visited I found but one L-frame hive. Mostly the American and the Mitchell hive are used. One man said when he first saw a Mitchell hive he thought it looked nice, and every thing looked as though it would just be fun to take honey from such a hive. But when he undertook to take honey he remembered about bees using propolis in every crack, and said it was a wonderful job to take honey out, as every thing was glued tight. A Mr. Kieffer, not far from me, said a man came around to him one day with a patent wire-bottom bee-box to prevent moth and robbers from getting in. Mr. Kieffer agreed to pay him \$20.00 for the township right. After the patent-right man made out the right, or paper, to that effect, Mr. Kieffer handed him his \$20.00. Each man went his way. After Mr. K. had gone home, he thought that night he would read over his township right, and was very much surprised to find he had paid the money for a farm-right instead of a township-right. The swindler, of course, had left on the first train, for some other place.

D. E. BAUGHEY.

Waynesboro, Pa., July 11, 1887.

Friend B., your neighbor was swindled without question; but even had he received what he paid for, I do not see that it would make any great difference, for I don't believe I know of a farm-right, township-right, or State-right to a patent hive that I should consider worth a copper. That old-fashioned way of doing business seems to be passing out of date and out of memory.

THE DROUGHT IN ILLINOIS.

I think there has been less rain the last 11½ months than since I have been in the State, in the same time—22 years; but 8 months before that was very wet, both fall and spring. Bees were in good order the first part of April, but they had to draw on what winter stores they had left in May.

DO BEES EVER STARVE IN JUNE?

One year ago they were booming, now the reverse. Some worked a little in sections, others not. There is plenty of white clover, but it turned brown so quick it had time to secrete but little nectar, as it was very dry and hot. Some days it was above 100° in the shade; and in the sun, against a building, it ran up to the top—130°. Little apples fall off and soon bake brown; so did blue grass. Hay is about ¼ the crop of last year. Small grain is also short, and the next two months will decide on our staple here—King Corn. I still hope the bees will get enough this fall for winter.

Limerick, Ill., June 28, 1887.

E. PICKUP.

Bees do sometimes starve, even in June. Reports recently seem to indicate that some will starve this year unless fed.

CARNIOLANS, AND THEIR DISPOSITION TO SWARM.

I am a novice in bee keeping, yet I have had what seems to me a strange experience, if the books I have read are to be relied on. I have a colony of Carniolan bees, in a chaff hive, which cast its first swarm on the 15th inst. It swarmed again on the 26th, and a third time on the 28th. The last being small, it was bived with the second swarm. In hiving them it was discovered that there was more than one queen with the last swarm. We examined the swarming-box, and took from it four large fine-looking queens. We afterward thought it best to examine the condition of the parent hive. We found it in fine condition, except that it had been very much reduced by swarming. We found, also, four other queens with as many as ten queen-cells yet to come out, still in the hive. We removed the queen-cells and two of the queens, and left two still in the hive. The hive contains about 75 lbs. of honey, but very little brood, and no fresh-laid eggs. Just how it will work out, I can not, with my limited experience, estimate.

J. C. BOUDE.

Lexington, Va., June 29, 1887.

One of the characteristics of the Carniolans is their great propensity to swarm. In this view of the case I do not know that what you relate would be any thing strange. Even Italians will sometimes behave themselves very much as did your Carniolan swarm. Sometimes as many as 20 young queens are found in a single second swarm. Not long ago, one of our correspondents said positively there were over 100 in one of his second swarms. See "Queen-Rearing" and "Swarming," in the A B C of Bee Culture, for further particulars.

BEES AND FRUIT; HONEY OF BLuish TINT.

I agree with Mr. Doolittle as regards bees eating fruit. I have several large fig-trees. Sometimes the trees are covered with bees until it looks dangerous to go near them; yet I have never seen a bee eating a fig that was not very ripe and bursted open. It has rained every day for three weeks. Bees, of course, are gathering no honey, consequently they are eating fruit. What do they do with the fruit when they eat it? Do they store it in

the cells? I took some comb honey about a month ago that was so blue I did not know what it was gathered from, unless it was from the elder. It was in bloom, and the bees at work on it, when the honey was gathered. The comb was very white. I see that you refer to such honey in a former issue, page 512.

J. C. SMYTHE.

Caseville, Miss., July 9, 1887.

I am inclined to think that the honey you mention was from the juice of raspberries. When there has been a dearth of honey during the time raspberries were ripe, I have dissected bees which came in heavily laden. The liquid which came from the honey-sacks of these bees was of a bluish tint. The taste was strikingly like the raspberry. While the honey above may not have been entirely from this source, yet it probably had enough of raspberry juice to color it.

HOW TO MAKE T TINS WITH A TINNER'S COMMON FOLDER.

I have made T tins on an ordinary tin-folder. My plan is as follows: I took strips of common roofing tin, and bent them first like this,  exactly in the middle. I then set the machine and bent one edge thus:  I next set the machine the same as at first, and finished the first bend, so that the tin looked like this,  which was as far as the folder would bend it. I then laid it on top of the machine, so that the last bend was close to the joint, and the other bend underneath. I next moved the folder around and on to the tin, and pressed the fold together thus:  I took one screw out at each end of the folding-plate (these screws hinge  this plate to the machine), pushed it away, put in the tin, pulled the folding-plate back, and held it there while I bent the other edge, and the tin was done. The machine I used was a common tinner's folder. The above may be of use to some who do not care to send a distance for a few T tins.

W. E. PETERMAN.

Trappe, Mont. Co., Pa., July 26, 1887.

Friend P., you have shown that a tinner's folder *can* be made to fold T tins. While it is possible to make them in an ordinary folder, yet it is impracticable to make very many. We gave your letter to the foreman of our tinning department. He succeeded in making a very nice T tin, but he says he does not think he could make over 100 a day by that plan, whereas he can make with our T-folder as many as 2500. Another thing, he says that your plan strains the folder, and might therefore injure it.

KING-BIRDS DESTROYERS OF YOUNG QUEENS.

In GLEANINGS for July 1st the question is asked, "Do king-birds swallow their victims?" If they are very hungry, I think perhaps they may do so, and that chickens, under like conditions, may do the same thing; but give king-birds plenty of queens and moth millers to eat, and chickens plenty of corn and wheat, and my opinion is that you will find very few worker bees in either king-birds or chickens. For the last seven or eight years I have kept from 150 to 250 stands of bees here on the banks of Feather River, where king-birds are plentiful. I have shot a great many of them, and have always failed to find any part of the bee in their

crops; and taking into consideration the fact that they come around when the drones are out, and almost always go away when they go in, I conclude that their mission is the destruction of queens only. In fact, I have seen them dart down where drones were flying thickly, catch something and make off with it, and about a dozen or more bees follow it as far as the eye could reach. Now, I think if there were no king-birds few queens would be lost.

T. G. H. JONES.

Nicolaus, Sutter Co., Cal., July 13, 1887.

ARE THE STRIPS OF ZINC IN THE SLATTED HONEY-BOARDS A HINDRANCE TO THE BEES?

I have been using, this summer, your slatted wood-zinc honey-board, the Heddon slatted honey-board, and the Hutchinson queen-excluding honey-board, ten of each kind. I think the wood boards of either kind are of very little if any hindrance to the bees going into the sections to work, but I have not been able to get a single colony to work well through the zinc. In one of Dr. C. C. Miller's letters he spoke of one of his friends who was able to keep the queen from laying in the boxes, without the use of a queen-excluding honey-board. Dr. M. also said he could prevent the queen from going into the boxes. His friend said it was one of the secrets of the trade. Now, if he or the doctor would divulge that secret I think he would do many bee-keepers a kindness.

KING-BIRDS.

I have found bees in the crops of king-birds. They are often in my yard, catching bees by sunrise, and late in the evening, when no drones are flying. The English sparrows catch many bees for me. I often see the large dragon-flies near my yard, catching the bees, and they do it very nicely too.

White clover was a failure here. Basswood did very little. Sumac has turned out honey well, and is yielding some yet.

E. D. HOWELL.

New Hampton, N. Y., July, 1887.

In our experience this season with the slatted honey-board, and the same with strips of perforated zinc slid in between the slats, we could see no decided difference in favor of either. However, it seems to me that under certain circumstances the bees would more readily enter sections where the strips were not used between the slats. If we are correct, Dr. Miller uses no perforated metal in his honey-boards, and we think, also, he has no trouble from the queen going into the supers and laying. I am sure there is no secret about it; but whatever it is, Dr. Miller will, on seeing this, give us further light. There is this to be said, however, in favor of the slatted wood-zinc honey-board: When contraction is carried to such an extent that the brood-nest is reduced to one-third of its former capacity, the queen, on finding her field of labors limited below, will pass above into the sections. To prevent this the strips of perforated zinc have been added to the plain slatted honey-board.

PERSISTENT SWARMING, AND THE CAUSE.

I am going to write to you to see if you or any of the readers of GLEANINGS can tell me the cause of our bees acting so funny. We started out this spring with five hives, and we have had but one swarm from them. It was a small swarm. We put

them in a Simplicity hive. They all went in, and were quiet the rest of the day; but the next morning, before we had eaten breakfast, they came out again and we put them in another hive, but they would not stay. They came out about every half-hour that day, and we put them back every time. We went out the next morning to see what had become of them. They were still in the hive, and are there yet, but are not doing anything. That was on the 20th.

C. C. BRUCE.

Helena, Ark., June 21, 1887.

Friend B., the old stereotyped remedy for troubles of this sort is a frame of comb containing unscaled brood. Of course, there are exceptions occasionally to this rule; but they are so few I should call it almost invincible.

BAD NEWS FROM J. B. MASON & SONS; DOING BUSINESS WITHOUT HAVING PROPERTY INSURED.

I sent myself to write you with a heavy heart. Saturday morning, at half past two o'clock, fire was discovered in our shop and store. The alarm was given, and every thing done that could be done with what facilities there were at hand, but it could not be saved—nothing was saved—3000 dollars' worth of goods burned up in a very short time. After years of struggling along to build up a business it seems very hard. You know, friend Root, something how to sympathize with us. I don't know that you do wholly, for it has taken every thing we had but our bees; and we want to say through GLEANINGS that we shall be unable to fill any more orders for this season, at any rate, except for bees and queens.

J. B. MASON & SONS.

Mechanic Falls, Me., Aug. 1, 1887.

I am sure the readers of GLEANINGS all extend their sympathy to friend Mason in his trouble; but I scanned the letter through anxiously to see whether or not he was insured; and I wish to say once more, that dealers, in bee-keepers' supplies especially, should make it a point to carry some insurance just as soon as they begin to do any business of any account. If the insurance cover even a part of the stock, it furnishes ready money to start up in business again; but where there is no insurance whatever, the result is many times almost ruinous. If you can not afford to pay the trifling amount needed to insure the property, don't go into that kind of business. I once knew of a wholesale house doing a large business, that refused to give credit to a man of moderate means unless he would constantly carry insurance. Insurance helps a man to pay his honest debts, and thus keep his name good, where, without insurance, it might be entirely out of his power. I do not mean by the above that you should carry the matter of insurance to extremes, but carry a moderate insurance, patronizing some one you know—your neighbors or fellow-townsmen; and have an arrangement made so it can not run out and be neglected. We trust to hear that friend Mason had at least some insurance on his factory. When our warehouse was burned, the insurance covered only a little more than half the amount lost; but this money in ready cash enabled us to replace promptly and without delay every thing lost that was necessary to go ahead with business.

A "RECIPE" TO PREVENT STINGING.

Please give a recipe for stopping bees from stinging every one who goes out of the house. I divided four colonies, and ever since they want full possession of the yard.

A. S. VANSYOC.

Indianola, Ia., June 28, 1887.

If you want to make bees very cross — so cross, indeed, that it is hardly safe to venture into the apiary, just let them get to robbing. In transferring, let the bees help themselves liberally to the sweets; let them get into the honey-house, and get to going there on your new honey. Friend V., the only way we know of to prevent bees from being cross is just the converse of the above. Be very careful not to let the bees get started. Don't let even one bee get a sip of honey that does not rightly belong to him. If you have pure Italians, and robbing is a thing unknown in your apiary, almost any one can go into it with impunity. Even cross hybrids, if you are careful, and do not let robbing get started, will be kind o' decent.

STRENGTHENING A NUCLEUS; QUESTIONS BY A BEGINNER.

To help a weak swarm, will it be safe to take combs, bees and all, out of a strong one and put the same into the hive with the weak one? Will the bees fight, or will there not be danger of having the queen killed? Would it work, in case the weak one had no queen?

J. B. BAUMBERGER.

Washington, Kan., June 27, 1887.

The best way to strengthen a weak colony having a queen is to give them one or two frames of hatching brood. In a few days there will be a large force of young bees. If you desire to further strengthen the colony, give them another frame or two of hatching brood. In colder weather be careful not to give them more frames than the bees can cover easily. You can take frames of brood with adhering bees from a strong colony, and put them into the weaker one; but if the latter has a queen there is danger that the bees from the stronger colony will kill the queen, though they probably would not, because all the old bees would return to their old stand, leaving the young ones on the combs. These, of course, would not be likely to molest their new mother. If the weak colony has no queen you can do almost any thing with them in the way of uniting that you wish, with no trouble. See "Nuclei," in the A B C book.

A CHEAPLY EXTEMPORIZED SOLAR WAX-EXTRACTOR.

I have a good sun wax-extractor which I made as follows: I first took off a large pressed-tin pan. Into this I fitted, about half way from the bottom, half a barrel-hoop, with wire cloth tacked on, placed inside of the pan to receive the comb and wax refuse. The whole was then covered with a sheet of glass, and it was done. It certainly is a grand affair to keep all small pieces in, as well as any cappings, as the sun reduces the wax very quickly.

A. L. KLAR.

Pana, Christian Co., Ill., July 8, 1887.

Your wax-extractor is complete, except that it has no reflector other than the flaring sides of the pan. In hot weather it might do very well without a reflector; but

we find that ours works a great deal better and faster when the reflector is up than when it is not.

BEE REPORT.

I began the season with 30 colonies. By taking two frames and brood from each of the several hives, placing in their stead frames of fdn., I have made five additional colonies. Into two of the new-made hives I carried, with the brood-frames, a queen, and allowed the hives from which the queens were removed, to create a queen. The other three new-made colonies had to make their own queens. All now have laying queens. I had only one natural swarm. If others came they absconded, unknown to me. About one-third in number of the hives were stored in sections from 10 to 30 lbs. each. In other apiaries I have not heard of any natural swarming, and all say that honey-storing is very limited.

I see our bees work on the sunflower and mustard bloom very vigorously. I have sown half an acre to buckwheat. I suppose that amount is hardly a circumstance for so many bees as we have. Every little will help, but I should think that, for 30 or more colonies, less than five acres sown to any blooming plant would be poor dependence.

JOHN CADWALLADER.

North Indianapolis, Ind., July 17, 1887.

BEST PACKING FOR WINTER.

I wish Ernest to tell us what he is satisfied is the best material to make or fill the cushions with to lay over the bees in winter. I do not like chaff, as it gets musty; and then when laid aside in summer, mice are sure to tear the whole to pieces. I should like soft dry planer chips if I could get them. Now, I can't see why the common dry sawdust (not the long stringy kind) would not be as good a thing as could be had. When we want to pack our ice we ask for nothing but sawdust to keep out the heat; and why not to keep out the cold from the bees? What do you say? I use the Hill device in principle, so the cushion can not rest heavily on the frames, and it leaves a space for the bees.

Moscow, Vt., July 11, 1887.

J. W. SMITH.

For winter packing over and around the brood-nest, we prefer wheat chaff. It is cheap, light, and always obtainable—at least, in most localities. The sawdust which you speak of might answer just as well. Our principal objection to it is, that it makes the cushions too heavy to handle. As to mice gnawing into chaff cushions, we scarcely ever have any trouble from that source. During summer we always store our cushions in a mouse-proof room.

THE QUEEN AS RULER.

Mr. R. B. Robbins' experience with a swarm, July 15th issue, together with the foot-notes of the editor, corroborates very closely my experience this last spring. I was looking at my bees, and upon opening one hive I noticed the queen near the top of the frame, running and twisting herself in wild excitement, and all at once I heard a sharp "peep, peep, peep." This lasted nearly a quarter of a minute, when suddenly every bee in the hive was uttering the same shrill note, and they rushed for the entrance. Not familiar with such proceedings I at once called for my smoker, but soon saw that it was only a natural swarm, and so I did not need smoke. I kept the enameled cloth off, through the whole

proceedings; and when they settled I lifted out all the frames to look for cells. I noticed two cells nearly half built. It was, no doubt, a natural swarm, and the bees all appeared perfectly quiet in the hive until the queen began her peeping, for I did not use any smoke to excite them.

B. G. LUTTRELL.

Luttrell, DeKalb Co., Ala., July 20, 1887.

REPORTS DISCOURAGING.

THE DRY SEASON.

THE honey season here has not been a successful one, speaking generally. We have had one of the most trying seasons for years, there being no rain of any consequence since the latter part of May. The fruit-bloom was a total failure, and bees were very late in breeding up; and the extreme dry weather having cut off the supply of nectar from white clover and basswood, it has been about all bees could do to gather enough to live on through the season, and be well supplied for the coming winter. Many farmers are now feeding their stock hay twice a day, and all stock eat it with as much relish as they would in December. Buckwheat has not come up at all, and corn will not be half a crop. It seems as though our lines were cast in hard places; but we never say "die," but look for a better show next year, Providence permitting.

M. W. SHEPHERD.

Rochester, O., Aug. 6, 1887.

No honey yet—rain, rain. Mrs. C. S. DAVIS.
Bethel, Vt., July 12, 1887.

BEES FAILED—102° IN THE SHADE.

Bees have failed in this section of country, and in Eastern Illinois the weather is very dry. The temperature was 102° in the shade for several days.

Sylvania, Ind., July 26, 1887. C. V. LINDLEY.

The season is very poor here—not more than one-fourth of a crop. My bees are, however, in good condition. I have my 182 colonies (spring count) in three apiaries, and have had fifteen swarms in all.

Edinburg, O., July 15, 1887. CHAS. R. BINGHAM.

LACK 2000 LBS. OF HONEY FROM LAST YEAR'S CROP.

My 58 colonies of bees will lack 2000 lbs. of making as much honey as they did last year. This is the worst season for honey I have ever struck since I have been keeping bees.

J. K. NICHOLS.

Danville, Ind., July 25, 1887.

"WHAT HAS THE HARVEST BEEN?"

The above heading in July 15th No., 1887, pages 532 and 533, will answer for many around me. W. Z. H. has told it as it is and will be before spring comes again.

I. R. GREEN.

Unadilla, N. Y., July 26, 1887.

POOREST EVER KNOWN.

The honey season has closed out, and has been the poorest I ever knew. No honey has been made from white clover. The basswood season was very short. Bees have had nothing to do but rob one another.

A. A. IRISH.

Big Spring, Mich., July 19, 1887.

NO RAIN YET.

Bees are not doing any thing this summer. In the spring it was too wet, and now it is too dry. If we do not get rain soon it will be a question in my

mind whether they will make honey enough to winter on.

G. H. HOLMES.

Defiance, O., Aug. 1, 1887.

HAD TO FEED, FOR THE FIRST TIME IN MANY YEARS.

Bees have not done any thing. They opened up strong, and used up all their stores before white clover, so we had to feed—the first time for many years. White clover did not yield any honey. We have had no swarms. I don't suppose there are 50 lbs. of honey in the brood-nests of my 60 hives. We have had plenty of rain lately, so we have good hopes for the fall yield, which, with me, has always been the best.

GUSTAVE GROSS.

Greenville, Ill., July 23, 1887.

REPORTS ENCOURAGING.

FILLED THE HIVE FULL IN EIGHT DAYS.

WE have 21 colonies in good shape. They are working for comb honey. I hived a swarm June 10th, and June 28th they had filled the hive and a 21-lb. section case full of honey, from linden. They are now working on a second case I placed under the first.

GEO. W. BALDWIN.

Forest City, Mo., July 13, 1887.

Bees are doing grand.

GEO. S. WASON.

Hawkesburg, Ont., July 25, 1887.

Basswood boomed for 7 days, the best I ever knew. It came out July 1.

D. HOXIE.

Wautoma, Wis., July 9, 1887.

THREE TONS OF HONEY.

Bees are doing finely. I commenced the season with 26, and increased to 60. I shall get about 3 tons of honey this season, one-third comb.

Honey Grove, Tex., July 28, 1887. G. F. TYLER.

BASSWOOD GOOD.

White clover was a failure with us. Basswood was good. My bees are gathering honey from sweet clover. No other honey-bearing plants are in bloom, and won't be till August. If it continues dry much longer, fall honey will be scarce.

Hillsdale, Ia., July 13, 1887.

E. W. FITZER.

SWARMING WELL.

The increase of swarms is favorable—about double in average apiaries. The honey-yield was light—I think not more than half an average. In my apiary I had 19 swarms the first of May, and in June increased to 38. Up to the middle of July I got 500 lbs. of comb and 100 of extracted. The average of this locality is about 20 lbs. per hive. At this date the bees are working well.

Ionia, Mich., July 28, 1887.

H. SMITH.

HONEY ADVANCED IN PRICE.

The honey crop in this State, as a general thing, has been a failure, as near as I can learn. Too much wet weather, I think, has been one of the reasons, although we had a good clover and basswood bloom, consequently honey has advanced. I am now selling comb honey in 1 and 2 lb. sections at 5 cts. per pound more than last year. Some of the farmers who keep a few swarms of bees have lately sold their honey at 10 and 12 cts., and are now sorry they rushed off what little they had.

E. L. WESTCOTT.

Fair Haven, Vt., July 21, 1887.

NOTES AND QUERIES.

WHAT IS THE MATTER OF THE BEES?

I HAVE three colonies, the bees of which crawl out of the hive and die; some of them turn on their backs and die in that position. Those that die appear to be puffed, and look to be nearly one-half larger than their natural size. I have never had any thing like it. The brood appears in good condition. I can't see any pin-holes, but a few dead grubs, which I thought was caused by not having bees enough to take care of the brood. The queens are vigorous, and look all right, and there is no unusual smell in the hive.

Massillon, O., May 19, 1887.

H. BEATTY.

[Friend B., we can not tell you what the trouble is, unless it is dysentery or spring dwindling. See the A B C book for a full description and discussion of the matter.]

HONEY CANDYING AS SOON AS GATHERED.

Our honey down here candied as soon as gathered, so that we can not extract any. What is the cause? Will bees use it in rearing brood? It is so hard that you can cut it with a knife.

Pleasant Hill, S. C., July 4. G. W. BECKHAM.

[It is rather unusual to have honey candy so soon. You do not state the probable source of the honey in question. The bees will probably use it this time of year, without any trouble.]

BLACK BEES ON RED CLOVER.

There is a clover-field one mile from my place. My neighbor sowed red clover for his black bees — "make honey out of it," he said. I see mine flying in that direction. I suppose they gather honey from there.

A. HENNO.

Aurora, Ark., July 15, 1887.

THE SEASON FOR MRS. HARRISON.

Not one of our colonies has died from starvation up to date, August 6th, although we have not fed any, excepting three swarms, which are all we have had this season. The price of honey is on the rise, notwithstanding that convention to boost the price failed to materialize.

MRS. L. HARRISON.

Peoria, Ill.

COOK'S HOUSE FOR THE APIARY.

Perhaps criticisms by the "smaller fry" are not in order, but I'll make the venture. If cars running past an apiary will disturb the bees in winter, would not the use of an engine and machinery in the shop of Prof. Cook also produce a detrimental effect upon the bees?

WILLIAM E. GOULD.

Fremont, Mich., July 20, 1887.

SEVERE STINGING.

We had a case of severe stinging ten days ago. Mr. M. went up in a tree 30 or 40 feet after a swarm, sawed the limb off, which fell so as to dislodge the bees, when they returned and alighted on his head, smothering him and stinging at the same time, which almost cost him his life, friends and physicians watching for 1½ hours, expecting him to die. He is up now, though whether feeling entirely well or not I can not say.

M. L. BREWER.

Philo, Ill., June 23, 1887.

EXTRACTED 6 LBS.

The season with us is a rather discouraging one. Clover was a failure, and basswood not much better, but there seems to be considerable honey gathered from red clover at this date, and we hope to get enough to winter, without feeding. I have

already extracted six pounds, and I hope to get a few more. We will, however, not complain, but "get the dish right side up" for next season, and drive at something else, meanwhile, to "make both ends meet."

CHRISTIAN WECKESSER.

Marshallville, O., Aug. 8, 1887.

IS IT NECESSARY TO USE ACID IN SYRUPS, FOR WINTER FEED?

Can vinegar, or any thing else, be used as a substitute for tartaric acid in making sugar syrup, on which to winter bees? If so, please give me the proportion to use.

JOHN MAJOR.

Cokeville, Pa., July 10, 1887.

[Yes, you can use vinegar as a substitute for tartaric acid in sugar syrup; but our experience for a good many years, without the admixture of either acids in the syrup, has shown that they are not needed. It is thought by some that the acid will prevent granulation, but we never have any trouble with the syrup granulating, made with sugar and water only.]

MUTH'S PLAN OF CURING FOUL BROOD A SUCCESS.

I have had a big fight with foul brood. I lost nearly all about three years ago, but I am all right now. I destroyed neither bees nor hives. I followed Mr. Muth's plan. I drove the bees into clean combs and used an atomizer with medicine as he directs, two or three times for two weeks. I see one man advertises, "Foul brood, no! Never saw a case." For my part, I should have more confidence in him if he had had such experience. His apiary may be rotten before he knows it.

M. G. YOUNG.

Highland, N. Y., June 27, 1887.

DO KING-BIRDS SWALLOW WORKER-BEES?

On page 514 you ask, "Do king-birds swallow worker-bees?" In May, 1884, I killed about 20 king-birds in my apiary, and opened a dozen of them. I found worker-bees in every one of them. I believe it was before any drones had hatched. Tell those bee-keepers who found nothing in the crop, to look in the gizzard. I very much doubt if a king-bird has any crop. I think their food passes from the mouth directly to the gizzard. When drones or queens are flying they take them in preference to workers.

Mauston, Wis., July 11, 1887.

F. WILCOX.

[Many thanks, friend W. In addition to your letter we have had two or three others, saying that king-birds do swallow worker-bees. One instance showing that such is the case is worth more than any number of others trying to prove that these birds do not swallow bees.]

THE GUILTY KING-BIRD, AGAIN.

I shot a king-bird last week in my yard, opened its crop, and found seven of my bees in it. We call them bee-martins. They have a little crown of bright-yellow feathers on top of the head, which resembles a flower.

R. B. WILLIAMS.

Winchester, Tenn., July 23, 1887.

THE EATING OF COMB HONEY, AND ITS EFFECT ON THE SYSTEM.

I should like to hear from you in regard to the effects of eating comb honey. I am quite healthy, and regular in my habits, but I find, when I eat liberally of it, that I become quite constipated. I attribute it to the wax, but I may be mistaken. Is it thoroughly soluble in the stomach?

P. J. CHRISTIAN.

New Orleans, La., July 17, 1887.

[I can hardly think that wax has any thing to do in the matter. There are very few who can eat either extracted or comb honey in a large quantity at a time without some bad effects.]



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novee, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

LESSONS ON HOW TO USE A BUZZ-SAW.

WE left the boys up in the barn-loft, listening to the great drops of rain pattering on the roof. The drops became more frequent until it amounted to quite a shower. It had been very hot and dry, and this rain was not only welcomed by our two young mechanics, but by the farmers throughout the country. The harder it rained the harder it seemed to blow, until Sam and Jimmy began to fear that their windmill would take wings. By the noise the mill was making they knew she was ready to go to work—saw, or do any thing else that her little masters might think proper. Jimmy and Sam could hardly refrain from dancing up and down on the floor; but when their enthusiasm had subsided a little they began to hunt for a good place to hang their lanterns, so that they could see the buzz-saw. Jimmy was just on the point of putting on the belt that connected the buzz-saw directly with the windmill, when he saw Mr. Green, who had just come in.

"Well," said Mr. Green, explaining to the boys, "I felt a little afraid you might get hurt. Besides, it is past bedtime for you both, and growing boys ought never to lose any sleep. I know that three or four hours from your regular amount of sleep does not seem to amount to very much; but I am sure that it does not pay. In view of the fact that you are liable to get hurt here at night, and that it is late, I think you had better postpone your work until to-morrow morning."

"Mebbe we sha'n't have any wind, t'marrer," said Jimmy.

"Yes," said Sam, "we only just wanted to try and see how our buzz-saw worked. You know we have been waiting here for nearly a week; and if we wait till to-morrow morning we run our chances of not getting any wind."

"I feel pretty sure," replied Mr. Green, "that this wind will not die down by to-morrow morning, nor during the whole day. As I came in I noticed that the air was getting considerably cooler. You will notice that the rain has stopped; and when this is the case the wind is pretty sure to continue for 24 or 48 hours. At any rate, I can not think it safe for you boys to work here to-night. To-morrow morning, I will agree to instruct you in the use of the buzz-saw more particularly. In watching the sawyers at the planing-mill you have no doubt imagined that it was very easy to cut boards in two; but as you have never done this kind of work you will need somebody to show you before you attempt it."

The boys reluctantly complied. Jimmy, on his way home, however, grumbled somewhat to himself—he knew he wouldn't get hurt; he could "cut boards in two just as easy as rolling off a log."

The next morning, before breakfast, both Jimmy and Sam were on hand. As Mr. Green had predicted, there was quite a cool breeze—a splendid kite-flying day, so the boys thought; at any rate, their windmill seemed to say, "Come on, boys; you see I am ready again for you this morning. I will work for you to-day for nothing, and board myself."

As was his custom, Mr. Green was up as usual, and so he and the two boys went up into the barn-loft. Jimmy, impatient to see the buzz-saw going, started to put on the belt. Mr. Green, seeing this, called out,—

"You are trying to put the belt on the wrong side of the wheel. You may crowd and try as long as you please, but you will never get it to catch in that way. In putting on a belt while the pulley is at full speed, be sure to put it on the side that is traveling away from the opposite pulley. You then need only to catch the belt to the rim, and it will climb on in a twinkling. It is a real art to be able to slip a belt on to a pulley."

To illustrate his remarks, Mr. Green took the belt in his hand, and let it barely touch the rim. It had hardly done so, however, before the buzz-saw began to whirl and hum. Sam was so eager to try the saw that he got a board and was going to push it against the saw, when Mr. Green objected.

"What do you call them wheels 'pullies' for?" said Jimmy.

"Pulley," returned Mr. G., "is a term used by machinists in distinction from common wheels. I now want you both to try putting on this belt, while I am here to help. Just watch me while I take it off. You see, I am going to crowd it off from the same side I put it on."

Having said this, he took a stick in his hand and bore on one side of the belt till it slipped off.

"Now watch again while I put it on. Sam, suppose you try it," said he, handing the stick to Sam. Sam found it was very easy to take the belt off, but he was not so successful in putting it on again. He tried several times before he succeeded. Jimmy then made an attempt, and with about the same results.

"Now," said Mr. Green, "you are ready to try sawing off a board." So saying he took a figure-four gauge, placed a board up securely against it, and pushed slowly. The windmill and the saw both then went to work, and for the first time showed that they were equal to the task of cutting off boards nice and square. Mr. Green found that the saw would not stand crowding at all, otherwise it would stall the windmill. He then tried some half-inch stuff. The saw would cut through that very easily and quickly.

"Now, Jimmy, you see how well you can do it."

Jimmy grabbed up the board, and proceeded to cut off a length as if he were an old hand at the business. Before he knew it, somehow or other the saw caught the board and jerked it out of his hand.

"What did that?" said Jimmy.

"The trouble was," said Mr. Green, "you should have held the board square against the gauge when the saw-teeth entered the board; for when you began to crowd, it pinched. One of two things had to follow—the saw would have to stop entirely, or else wrench the board away. I forgot to caution you before you tried sawing. At all events, I will say now, be very careful. It not unfrequently happens that men lose their hands, or are knocked insensible, by such a little mishap as that. In the first instance, the saw would so jerk the board as to throw the hand right on the running saw. In the second instance, the momentum which the board would acquire from the saw would be sufficient to knock a man down if it should strike him right, and possibly even kill him."

Jimmy tried it again and was more successful. Then Sam tried his hand. In view of Jimmy's mishap he was even more successful.

"Hark!" said Sam. "I guess ma is calling us to breakfast."

"Yes," said Mr. Green, looking at his watch, "it is high time now."

After breakfast, Jimmy and Sam, along with Ted, climbed up into the barn-loft. They then waited for Mr. Green to come up and give them further instructions. In the mean time Jimmy tried his hand at slipping on the belt, which he did with entire success. Just then a teamster from the mill called out at the barn-door below. He had just come with a load of lumber, which Mr. Green had ordered for the hive-stuff. The two boys hastened down, leaving Ted upstairs with the buzz-saw running. As there was not room above in the barn-loft for very much lumber, Mr. Green had arranged a place in an unoccupied stall below. Here the boys were engaged for a few minutes in taking indoors and piling the lumber in said stall. When the boards were all neatly stacked up, Jimmy heard a giggling upstairs; then a sharp click, as if window glass were breaking; another giggle, and another sharp click.

"My!" said Sam, just recollecting himself, "we left Ted upstairs."

"That's so, by cracky!" said Jimmy.

So saying, the boys hastily clambered up

into the barn-loft. As they got upstairs Ted was laughing, and saying, "See 'em zip." The buzz-saw was humming at full speed; and with a bundle of sticks in his hand, every now and then he would drop one on the teeth of the saw. With the acquired momentum of the teeth, the sticks shot across the barn like bullets, traveling at the rate of about three thousand feet a minute. Some of the sticks had hit Jimmy's and Sam's window, which our readers will remember they had fastened into the side of the barn, right over their work-bench.

"Just see 'em zip!" said Ted, before the boys could interfere; and another stick went whizzing across the barn, nearly hitting Sam.

"Look here, you little brat," said Jimmy; "who said you might do that?"

"Nobody," said Ted; "just see 'em zip;" and another stick went whizzing, and another little hole was made in the window.

Jimmy was so enraged that he grabbed his little brother by the nape of his neck, and hustled him downstairs about as fast as he knew how. Ted then began to set up one of his roars. He wanted to go back and shoot some more sticks.

"No, sir; you won't go up into that barn again in a hurry, I guess. I never can take you anywhere but you're into some sort o' mischief." So saying, he hustled him off home. Jimmy's mother came out, and was prepared to give him a scolding. Jimmy had got used to them, and so did not mind it. After his mother had said all she had to say, he hurried back, to find Sam mourning at the loss of his window.

"My!" said Sam, "if that stick had hit me I believe it would have gone right through me. Why, just look there! It went clean through that window, making a nice round hole."

By this time Mr. Green came in. Upon the boys' telling what had happened, he said that was pretty dangerous business. It was a wonder that some of them did not get seriously hurt—more than all, that Ted had not cut his fingers, or got caught in the belt. He did not blame Ted, but he did blame the boys for being so forgetful and careless as to leave so small a boy alone near running machinery.

Continued Sept. 15.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

A YOUNG QUEEN.

How long will a queen live without attendants? I put a young queen in a cage at about five o'clock in the afternoon, June 30, and she lived by herself until some time in the night of July 2.

LEE W. WRIGHT, age 12.

Palmyra, Mo., July 8, 1887.

A queen by herself will not live very long; but if she has a few bees with her, and a little Good candy, she will live from a week to two weeks.

A SELECTION.

Listen to the honey-bee
As it dances merrily
To the little fairies' drum
Humming, humming, humming, hum.
Never idle, never still,
Humming, humming, hum.

GEORGE ELLISON.

Stateburg, Sumter Co., S. C., July 22, 1887.

HOW PA TAKES DOWN A SWARM.

When my father has a swarm up high in a tree he takes a long pole and fastens a box to the end of it, then he raises it up; and when the box is under the swarm he bumps it up against the limb till the bees fall into the box, then he lowers it and puts them into a hive he has ready.

ERNEST C. HILTON.

Los Alamos, Santa Barbara Co., Cal.

LOVING JESUS.

I am seven years old, and I go to Sabbath-school. I wish all little boys and girls who go would try to get those to go who do not, and learn to love Jesus. I think it is in Sabbath-school they will be taught to be good, and to do good, and help others to learn of Jesus. Jesus said, "Suffer little children to come unto me, and forbid them not; for of such is the kingdom of heaven."

FRANCES NELSON.

Talley Cavy, Pa., Mar. 18, 1887.

FOLDING SECTIONS.

I put sections together at the rate of 660 per hour. They were the one-piece sections. Pa has about 40 stands of bees. I have one. They have not swarmed this year. They are all Italians. They made no honey last spring, but are getting some from sumac now.

CHARLES WELTY.

Nashville, Mo., July 21, 1887.

Try again, friend Charlie, and see if you can not equal the record of Nettie Cranston, as recorded on page 550, July 15th. If you turn back you will see that the little girl has nearly doubled your rate of folding.

ESTHER'S LETTER.

We drained our fish-pond, and did not find any carp. The clover is yielding very little honey, on account of dry weather, but we are getting some rain now. The fog is very heavy, and the little chickens don't like it. They make a very loud peeping. Lem wants to go out and see what is the matter with his chicks. He has the chicken-pox, so he dare not, but he doesn't know it. The strawberries all dried up, but the grapes are fine. The Concorda are the largest, but the Vergennes and Pocklington have the least foxiness on the grape.

ESTHER TRIEDLEY.

Silver City, Iowa, July 2, 1887.

THE MOSQUITO HAWK.

Pa has two hives of bees. Brother George has five, and I have one. We keep our bees in what is called the Golden bee-hive. Pa says he does not like it, because the top story is too small. He knocked off the bottom of the bottom story, and put it on one of his hives instead of the small top story. I am the one who attends to the bees and takes the honey. What is called the "mosquito hawk" is a great enemy to the bees. You see them every evening flying around the hives, and now and then you see one catch a bee and go off. I like to work with bees when they are not too cross.

Johnsonville, S. C., May 12, 1887. S. O. EDDY.

HOW TO TAKE A SWARM DOWN FROM AN APPLE-TREE.

I should like to tell that other Fred (see page 68) how to take bees down from the tops of apple-trees, without getting stung. Fasten the swarming-box under the cluster, as near to it as possible. Take one end of a ball of wool-twine, climb the tree, tie the twine around the limb just above the cluster, then get down. Take the ball, and go away as far as you please, and shake until the bees are all in the swarming-box, then carry them to the hive.

FRED GILLETT, age 11.

Brighton, Lorain Co., Ohio.

QUICK CAPPING OF HONEY.

My pa takes GLEANINGS, and he said he had never read of honey being capped in three days after it was gathered. But we had some in 1886, and the year before, that the bees began to cap the third day after it was gathered. At the fair, pa talked with a man who had been keeping bees for a long time, and this man said he had "never heard tell of" honey being capped in less time than six days, and we want your opinion. We took 995 lbs. of honey in 1886, and increased from 13 to 19 swarms.

Eaton, Preble Co., O. LOLO R. FLORA, age 13.

I should say it was rather quick work for bees to cap honey over in three days after it was gathered. Honey must have been coming in at a great rate.

DIFFERENCE IN LOCALITIES BUT A SHORT DISTANCE APART.

Our bees have not gathered enough honey to keep them all alive. We have had to feed some. My pa has 48 hives of bees. They are a little weak. Bees all around us are doing well. Eight or nine miles south and east they have had plenty of rain. If it does not rain soon I don't know what bees are to do here.

ROBERT WILLIS.

Jonah, Williamson Co., Tex., July 12, 1887.

Yes, Robert, a distance of only a few miles oftentimes makes quite a difference in the honey crop.

BEES AND FISH.

My pa has a new way of feeding his bees. He takes a little glass tumbler and fills it with syrup, puts on the lid, turns it upside down, and it runs out enough for the bees to eat it as fast as it runs out. Pa is building a workshop and a granary, and he is going to have a room in it to keep his honey to sell. We have three fish-ponds. When pa goes to the ponds every morning to feed the fish he smacks his hands and calls them, and then he throws bread in to the fish, and they come up and eat it. The cranes eat up some of them. Pa saw a crane at one of his ponds this morning. He shot at it, but did not kill it.

SUSIE COOPER.

Traveler's Rest, S. C., July 5, 1887.

THE CATALPA-TREE.

One year ago I made up my mind to have an apiary. As I was only thirteen years old, I bought one colony which has increased to three. The colony which I bought I have transferred into a Simplicity hive. They have not made much surplus honey.

We have the catalpa, or cigar tree, here, and the bees work on them all the time they are in bloom. If you were under the trees it would sound as if there were a swarm going over your head. One of my colonies seems to be very weak. Pa and I look-

ed for the queen, but could not find her. Pa does not know much about bees, but could tell a few things about seeds, for he has been a clerk in that business for 22 years. The last twelve were spent in the employ of Peter Henderson & Co. Last March he came here to the land of peaches and berries to try his hand at fruit-growing.

Redden, Del.

E. S. COMPTON.

BLOOD-POISONING FROM BEE-STINGS.

Mr. J. S. Starn was hiving a swarm of bees for a neighbor, when he was stung twice—once on the nose and once on the chin. In about three weeks he was taken sick. They sent for a doctor. He said it was blood-poison. His throat came very near swelling shut, but it broke and saved his life.

This section is very good for bees. We have fruit-bloom, black locust, white clover, and bass-wood. About half a mile from here is a ten-acre field of alsike. The bees have a regular picnic on it. The honey has the flavor of white clover. We have sweet clover along the roadside. A friend told papa that one cup of honey would sweeten three times as much as much as one cup of sugar.

MACY M. ELLIS, aged 11.

East Monroe, Highland Co., O.

Are you sure, friend Macy, that the bee-stings which Mr. Starn received three weeks before, had any thing to do with the swelling of his throat? The effects of bee-stings are immediate.

A QUEER COLONY.

Pa takes GLEANINGS, and he likes it very well. He says he would rather stop any other paper than GLEANINGS. I like to read the little juvenile letters. We have one colony of Italian bees. Our bees swarmed four times this summer, so we have five colonies in all. Our bees swarmed very queerly. The 12th of June a swarm came out, and they all went back into the hive again; and 11 days after that they swarmed again, about 9 o'clock, and went back again in the afternoon. They swarmed again at 2 o'clock, and clustered on an apple-tree near their hive; the next day at 9 o'clock they swarmed again, and clustered on the same apple-tree. The next day at 10 o'clock they swarmed and clustered on a little cherry-tree; two days after that they swarmed, and clustered on an apple-tree, and after they were hived a little while they all went home again. Two days after, they swarmed again, about half-past 8, and they are all doing nicely now. Pa winters his bees down cellar. He made a Hill device for them, and they came out nice in the spring.

KATIE M. ZEHR, age 12.

Indian River, N. Y., July 17, 1887.

Your colony, friend Katie, behaved itself in rather an unusual manner. Do we infer that they returned to the parent colony as often as they swarmed?

SWARMING, AND THE SERVICE THE LITTLE FOLKS MAY RENDER; HOW A QUEEN LOOKS AFTER SHE IS STUNG.

We have 85 colonies, and sometimes it is lively with them. One day seven swarms came off at once. When the swarm is small, pa puts two together or takes the queen, and then the bees go back into the hive. Two days ago a little swarm came off, and pa found the queen after they had alighted. They stayed on the tree. He looked after and found another queen. We put them both under a goblet. They caught each other, and one of them stung the

other. She doubled up like a burnt shuck, and in a little while she died. After pa got the second queen he shook the bees off, and then they settled in three or four places. All of them went back in the hive, except about a tea-cupful. The next morning Edith took a strawberry-box and put them in it; then she asked pa to look at her swarm, and there was a queen in it. He made her a little hive, and she put them into it. Pa gives ten cents a swarm to the one who sees or finds it first. I have found 12, Edith 13, Fred 6, Grace 2. Pa generally finds them first. He chewed tobacco for 25 years, but he quit four years ago. He says he feels much better now, than before he quit chewing.

JASPER D. TRACY.

Longmont, Col., July 11, 1887.

Thank you, friend Jasper. Your father's plan of paying his children ten cents for every swarm they discover first, and report, is a good one. Have you all learned the swarming-note, so that your ears tell you what your eyes may expect? I should like to know how many of you can tell the robbing-note—that high key, or angry hum. It seems to me that, if one of you find a case of robbing before any one else, he ought to be rewarded with—well, say 50 cents. Perhaps even a dollar would not be too much, where the consequences might have been rather serious. Beginners often find it difficult to detect robbing at its start; but practice will soon enable them to tell every time.

THREE LITTLE TURKEYS, AND THEIR STEPMOTHER.

Mr. Editor:—We had two hens hatch chicks at the same time. All the chicks were given to one hen, which were placed in a coop at the apiary, some distance from the barn, where the hatching occurred. The hen whose chicks had been removed stayed around the nest for two days, clucking for her lost babies. At this time another hen in the yard gave indications of weaning her brood of turkeys, which had dwindled to three. They were four weeks old, and their big mouths had seemingly disgusted the hen. At evening she left her three little turkeys. The hen which was bereft of her own natural brood was sitting on the empty nest where she had hatched.

I said to my wife, "Let us try an experiment."

We placed the three little orphaned turkeys under this hen. She uttered two or three notes which seemed to say, "Take care, now," as though not well pleased. But it was near dark, and all became quiet. In the morning the hen was found using most assiduous motherly care over the three little turkeys, which were very offish, and reluctant in accepting the profuse attentions of their new stepmother. The hen which had hatched and cared for the turkeys until they were four weeks old did not come near or recognize them, and in a short time the persistent attentions of the new stepmother overcame their turkish prejudices, and they very soon became cordially the most loyal little turks on the ranch. Their stepmother would attack any animated nature, from a half-grown chicken to a full-grown cow, which would chance to come near her turkeys. For three weeks there has been no abatement of the care these little turkeys have had from the hen which adopted them. Is this case a result of reason on the part of the hen, or of strong natural instinct? It looks like reason. Who can answer?

JOHN CADWALLADER.

North Indianapolis, Ind., July 17, 1887.

OUR HOMES.

For where your treasure is, there will your heart be also.—MATT. 6: 21.

Though I walk through the valley of the shadow of death, I will fear no evil.—PSALM 23: 4.

CONNIE and Caddie and I took a two-days' vacation. They are aged respectively fourteen and nine, and I had long talked with them about showing them the home of my boyhood; and I wanted especially to show them the beautiful soft-water springs that gush out of the hillsides and rocks of old Summit County. Well, we found the springs; and as it was in the midst of an August drought we enjoyed them, I assure you. But as I shall have a special article on springs ere long, I will not tell you about them just now.

In visiting a relative, by chance I met an old schoolmate. We hadn't seen each other for more than thirty years. My recollection of her was of a good-natured, light-hearted schoolgirl, and, to tell the truth, I had so nearly forgotten that such a person existed I had to make an effort to refresh my memory before I could exactly locate her. Then we talked about the old school-house, and of the time when the trustees decided to build a better one, and of the various other events that happened when we were careless, heedless children. Then the intervening years were gone over. The talk lasted from twenty minutes to half an hour, and during that interval several times the thought came into my mind as to whether this old schoolmate was a Christian, and were her hopes centered in Christ Jesus? I thought I would bring the subject in before I went away, but there did not seem to be any good opportunity. When she smiled she looked much like the girlish schoolmate of former days; but when the smile had passed there was a look somewhat akin to sadness; and this look, with the gray hairs and occasionally a wrinkle, seemed to indicate that she had had her trials and sorrows as well as the rest of us. I tried to think of some way of broaching the subject of the Christian's hope; but others were present, and I was afraid they would think me eccentric, or odd. Now, I do believe, friends, that it is a Christian duty to avoid eccentricity, and especially to avoid any thing that would look as if we wanted to attract attention to our peculiarities. A Christian should strive to have his life count all it possibly can, and he can not take any risks. I am sure, however, that *Satan* often offers these suggestions, that we shall do more harm than good by speaking out, and I feel sure it was so in this case, because, as I passed out through the beautiful dooryard, a weight of gloom rested on my spirits because I was going away without speaking a word for the Master. I did not tell her of the great change that came into my life during about the middle of these thirty years. I did not tell her of the joyous inspiration that makes life worth living, and that comes to every one whose hopes are founded, not on self, but on Christ Jesus. Conscience whispered, that Caddie and Con-

nie, for whom my wife and I have been praying so much, might get an impression, from the talk they had listened to during these twenty or thirty minutes, that all there is in this life is to go along quietly and take good and evil as they come, looking on it all as an idle show, or like some simple panorama for our entertainment. I don't think they could have gathered any thing from our talk, to the effect that either one of us regarded life as a sacred and solemn gift from God, or that we regarded it as a great and inestimable privilege to live, and to work for the upbuilding of mankind. The memory of that face comes back to me over and over again; but the opportunity was allowed to slip by, and may never come again. If it does, I am going to tell her how sorry I felt that I did not tell her of the new-born hope that had come into my life in middle age, and made this world—nay, the whole universe—so intensely real, because, during the last part of my life, I have been living for something, while before I was living for nothing or worse than nothing—for self and selfish purposes, and for selfish ends.

This friend had heard of me during these years, and had no doubt heard that I was an earnest and enthusiastic Christian. I can imagine that she might say, after I had gone, "Why, I've heard so much about Mr. Root's Christianity, and that he never lost an opportunity of speaking to every one about their soul's salvation. I did not see any thing about him different from people generally, or people of the world. There was nothing in his looks or actions, and surely not one single sentence in his talk, to indicate that he had any such faith or earnest convictions as I have heard about." If my treasure was in heaven, why did not my talk have some reference to it in some way? In other words, why did she not see that my heart and soul were where this treasure was also? It was because I didn't act natural. I had somehow got it into my head, that, when I met old friends, the way to do was to make a sort of fashionable call, as people generally do. My friends, it is a blunder and a mistake, and I will tell you how I know it.

It had been so many years since I visited my relatives whom I proposed to call on next, that I was obliged to ask directions. I didn't understand the directions, or, rather, I didn't listen very carefully, and so I called at the wrong house. By the way, Connie says I was stopping at the wrong house every little while. I told her it didn't matter, any way, for they were all our neighbors at all houses, and that I liked to see folks, and talk with them, even if they were entire strangers. When I suggested that we had reached the place, she demurred.

"Why," said I, "the lady said one cousin lived on one side of the road, and another cousin on the other side, and here are the two houses on opposite sides of the road. Besides that, see those chaff hives so nicely arranged over there. We can not be very much mistaken in calling where there are bee-hives."

Accordingly, we three passed up the shady

gravel walk: and just as I got before the screen-door, whom should I meet but a very dear friend whom I supposed at the time was away off in Michigan? She laughingly welcomed us, saying at the same time she was pretty sure I made a mistake or I would not have called there. Connie laughed too, declaring it was really so. But it was not a very bad mistake after all, for the place was owned by still another relative, and one of the younger ones owned the bees. The family were all away, however, except the two ladies, and with these I had a most pleasant half-hour. I had the same feeling as before, and I had also been waiting for an opportunity to speak with them in regard to the matter that was nearest my heart. I hope, dear reader, I can truthfully say, a matter that is always uppermost, whatever may for the time being take my attention. The opportunity came in this way: One of the ladies, who was a bee-keeper, asked if I had ever heard of any one swallowing a bee. When I replied in the negative, she remarked that their hired man had, a few days previously, swallowed one while drinking. He was watching his horses at the time, and drinking hurriedly, and therefore did not see what he had done until he felt the bee stinging him part way down his throat. He came to her in great trouble, and asked what had better be done. Although she was not very positive, she instinctively guessed that the safest thing would be not to alarm him needlessly; so she assured him there was little probability of its giving him any trouble at all, and thought he need not feel any anxiety in regard to it. He accordingly went on with his work, and it turned out as she surmised. I was at first startled when she mentioned the occurrence, and remarked that I should have feared, more than any thing else, the danger from swelling so as to cause suffocation. Perhaps many of the readers of GLEANINGS may remember a case that was reported in England, of a man who was strangled to death by being stung by a bee in his mouth or throat. The talk then turned on the importance of being cool and self-possessed when things of this kind come up that may cause fright, and I told the ladies of a little experience of my own which had a moral to it; and as this moral may be profitable to you also, I wish to tell it here:

As long ago as when I was a boy in my teens I was, and have been since, troubled with a chronic sore throat. The first time I was alarmed by it I was sleeping alone in my store. While sound asleep, an irritation in my throat caused a spasmodic closing of some part of the respiratory organs. I sprang to my feet, and for a few moments it seemed doubtful whether I should ever be able to force my breath again through the passage that had closed so strangely and so suddenly. During that time I mentally faced death. I thought of dying alone by myself, before I could manage to call anybody, and make myself heard, as there were none very near. Dear reader, at that time I had no faith or hope in Christ Jesus. I was taking care of myself, and doing as I pleased; but when I stood at death's door, I

felt troubled, I tell you. You know how the mind reviews events at such a time. My past life passed before me with lightning rapidity. I summoned all the courage I could, and tried to face the issue, but it was hard work. There was no comfort anywhere. I was away out at sea, in utter darkness. No gleam or ray of hope showed itself in any direction; no friendly arm was near me to lean upon. After some pretty hard struggles for the breath of life, the spasmodic action passed away, and I could breathe, though with difficulty, once more. Ever since that moment I have realized what a privilege it is to be able to breathe easily and without pain. I wonder now that I didn't say "thank God" when the danger was passed; but as I didn't recognize any overruling power then, there was nobody to thank. Of course, I consulted a physician at once. He prescribed cauterizing the throat with nitrate of silver. After submitting for several months to the painful treatment, resulting in no perceptible good, I tried other physicians, and have been trying. My opinion now, however, is, that honest hard work in the *open air* has been worth more to me than any doctor.

Some years afterward, in consequence of a slight cold, this throat trouble again began to be acute. In the middle of the night my breath stopped again short and suddenly. I sprang from my bed and got out on the floor, and tried in vain to open the passage that had been shut by the spasmodic action. By an effort that made the sweat come from every pore in my body, a very little air could be forced in and out of my lungs; but it was evident that life could not last long in this way. Again I was obliged to face grim death. For a time I was frightened and demoralized, and forgot every thing except the intense and all-absorbing fight for breath. No one except him who has passed through such an experience can understand it. I not only felt that I would have given worlds for the privilege of breathing free again, but I felt that I *must* have breath. I tried to reconcile myself, and submit to death, if my time had come, but there was no submission. It seemed as though a long time elapsed, but I presume it was only a few brief seconds; but amid the agony (*mental* agony, for as yet I had suffered but little, comparatively, physically) came that little prayer, "Lord, help." In an instant a feeling of thankfulness (that is, thankfulness compared with the former darkness) began to well up that there was help and aid; and while I prayed for breath I prayed also for grace to submit, if it were the Lord's will that I should never draw breath more. It was a battle between self and Christ—much such a battle as I had fought many times before. But Christ triumphed, and comparative peace came—not that I was willing to give up life, by any means, but I felt willing to submit it to the Judge of all the earth, feeling sure he would do all things right. My wife was near me, shaking with excitement and sympathy, especially to think that she was powerless; for different physicians had told us before, that nothing could be done in such cases. I

kept straining every nerve, to force a little air through that shut-up passage; and as the peace that only God can give under like circumstances began to come into my soul, the stubborn muscles began to relax a little. And can you, my friends, think for a moment how I rejoiced to feel that terribly labored breathing begin to come and go a little easier? In a few moments I could breathe almost naturally; but my lungs and windpipe were smarting as if they had been torn and lacerated by the terrible muscular effort. I began to think after that, that fright had much to do with it.

Some time afterward, while in the apiary, I was stung on my neck. It was a pretty bad sting in a very tender spot, but I thought nothing of it until I began to feel a swelling in my throat, and symptoms of a closing of that terrible air-passage. Already a wheezing sound that announces it, had commenced. Something whispered (is it possible that it was Satan?) that now I should die, sure. If my throat became swollen from the effects of a bee-sting, I should surely die as the poor friend who has been spoken of over across the water died. I felt weak and faint. The blood rushed to my face, and the sweat began to pour forth again. This time, however, I had grace enough to say promptly, "Get thee behind me, Satan. I am trusting in the Lord Jesus Christ, and he has power not only to still the winds and the waves, but to raise the dead if he choose. I am in his hands; and whether I die or whether I live, blessed be his holy name."

The fright and excitement began to abate, and, to my great relief, the spasmodic action of the breathing-apparatus also began to subside; and, my friends, although I even now thank God for the privilege of free and easy breathing, I thank him a thousand times more for the privilege of feeling safe and secure, no matter whether it be through life or through death. I have had one experience in facing death alone, with nothing but midnight darkness and gloom—with no hope or faith; and I have had another, with the comforting feeling that the great God of the universe is always ready, and always watching over the children he loves, if they will only put their trust in him.

Are not two sparrows sold for a farthing? and one of them shall not fall on the ground without your Father.—MATT. 10: 29.

The point comes in here, that suggests that many times people lose their lives by the excitement caused by fright or the effects of imagination. Physicians have already told us much about cases of this kind. Well, if this be true, a faith in God does much—yes, very much—to prolong life.

The Lord is my light and my salvation; whom shall I fear? The Lord is the strength of my life; of whom shall I be afraid?—PSALM 27: 1.

Now, when my cousin told of the experience of the hired man, and that she assured him there was little probability that any harm would come from it, she did a wise and kind thing. People may be so frightened as to very much aggravate the danger of a bee-sting, and, if I am correct, the danger of many other diseases may be averted by a quiet, peaceful trust in the Lord, es-

pecially in matters where we are helpless. My friends were both professing Christians; and when I told them of my experience, as I have told you, I was pleased to notice how their countenances lighted up. We then had many talks of God's kindness in times of severe trial, and this opened the way to something in regard to faith in prayer. When we parted we had all been strengthened in our Christian experience; and I believe the result of that half-hour's talk will cause us to remember, as long as we live, that we are not only related by flesh-and-blood ties, but through the love of Christ Jesus, the friend of humanity. At the close of my first visit I went away feeling sad and self-condemned. I went away feeling cold and indifferent, and away from God, and, I am afraid, with a smaller amount of faith; but after this last visit I passed down on their beautiful walk under shady trees, with a feeling of gladness and thanksgiving and praise in my heart—with a feeling that no words could express, and no tongue tell, of the comforts that come to those who are striving to lay up treasures in heaven rather than on earth, and with a feeling that I can hardly describe, but something like this: A feeling that it is indeed true, that God has placed it in the power of each and every one of us to strengthen the faith and hold up the feeble hands of those round about us; that during a half-hour's visit we may talk of the world and of worldly things in a way that will encourage the feeling that this world is all there is to live for; or, on the contrary, we may, in even one half-hour, raise ourselves and those about us to a contemplation of spiritual things that shall infuse new energy; that shall give inspiration in the pursuit of these things in every-day life; that shall ennoble and lift up, and help all to take another step heavenward.

A trust in Christ contributes to make us brave in life and brave in death; and this bravery is not of the defiant kind either, but it is a trusting and confiding courage. Jesus braved death when it was constantly in his power to sink his enemies into oblivion; but putting all thought of self and of bodily suffering out of the question, he died that his enemies and persecutors might live. It was as hard for him to die as for any of us; and with human weakness he shrank from it just as we would. Indeed, at one time he uttered the words, "My God, my God, why hast thou forsaken me?"

Now, my friends, if this talk to day has been the means of helping you to trust in the time of trial in the kind Father who placed us here for his own wise purposes, I shall feel glad and happy that I have given you this little bit of my experience; and I know, friends, by personal experience, that there is no comfort and no satisfaction in encouraging skepticism and unbelief; while I do know, also, that he who trusts in the Lord has his feet planted on the solid rock; and the comforting thought may be always in his heart, no matter what dangers threaten.

Though I walk through the valley of the shadow of death, I will fear no evil; for thou art with me; thy rod and thy staff they comfort me.—PSALM 23: 4.

TOBACCO COLUMN.

ITS ORIGIN, AND HOW INTRODUCED TO CIVILIZED NATIONS.

FROM one of my books I copy the following: "Until the discovery of America, the tobacco-plant was unknown to Europeans. The sailors who accompanied Columbus noticed the natives puffing smoke from their mouths and nostrils, and soon learned that this arose from the smoking of the dried leaves of a plant." I suppose the Europeans thought that what was good for Indians was good for them, so they picked up their filthy habit; but they knew no better. I like the description King James gave of its use; he said, "It is a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs."

Think of the many thousand who will go to the bottomless pit through tobacco. I wish more would try to do what you are doing, and may God be with you in that work. "The poisonous nature of tobacco is mainly due to one of its elements called nicotine. This is a deadly poison. Experiments show that two drops, placed on the tongue of a fowl, causes death almost instantly." That fact alone ought to persuade them to stop; but they are such slaves, and their will is so weakened, they don't.

I have a neighbor who, I think, would not stop its use for one hundred smokers. What we want is to keep the younger ones from it. The older people won't last always.

There is not much use of repeating it, for nearly every one knows that "tobacco, like alcohol, injures the brain, deranges the entire nervous system, spoils the appetite for wholesome food, lowers the life forces, injures the lungs and heart, and depresses the spirit. When indulged in by young persons it saps the foundation of health, and dwarfs the body and mind."

"It is rare to find an inebriate who does not use tobacco; and careful inquiry will prove the statement that, in nine cases out of ten, the tobacco habit was first formed." Keep the young from it if you don't want them to be drunkards.

Wayland, N. Y.

W. A. LAWRENCE.

I have quit using tobacco; and if I ever use it again I will pay you in full for a smoker.

New Portage, O.

ISAAC FRITZ.

I have quit using tobacco, and never intend using it again. If I should I will pay the price of the smoker.

Walla Walla, Wash. Ter.

H. W. BUFFUM.

I hereby promise to quit the use of tobacco in every form; and if you send me the smoker, and I use tobacco again I agree to pay you for the smoker.

Wise, W. Va.

ELI COLLINS.

I have quit the use of tobacco altogether, after using it for 15 years, and I expect to stay quit. If I am entitled to a smoker, send me one; and if I begin again I will pay you in full for it.

New Florence, Pa.

GEO. R. STEWART.

I used tobacco for twelve years, but quit about two months ago. If you will be so kind as to send me a smoker I shall be ever so much obliged; and if I ever go to using the weed I will pay you your price for the smoker.

Montevallo, Mo., July 20, 1887.

N. F. CRIFE.

Mr. W. W. Hallenberger says he will quit the use of tobacco if you will send him a smoker. He will pay for the same if he resumes the use of the weed.

Sherwood, O.

P. E. KINTNER.

I have quit the use of tobacco, and I should like to have a smoker. If you will please send me one, if I ever use tobacco again I will pay for it.

Ambrosia, La., July 2, 1887.

W. A. WALTERS.

I have quit using tobacco; and if you think I should have a smoker, send me one; and if I ever recommence the use of it I will pay you for the smoker, and I will try all I can to get others to quit the filthy weed.

J. SULOUFF.

Cocolamus, Pa., July 2, 1887.

I began using tobacco three years ago, for the purpose of smoking bees; but I found it injurious to my health, and I quit the use of it. If I am entitled to a smoker, send it along, as I promise never to use tobacco again. If I do I will pay you for the smoker.

E. MCCLAIN.

Potosi, Wis., June 20, 1887.

My uncle has been a slave to tobacco for 11 years, but quit the use of it about 7 months ago, and would be pleased if you would send him one of your smokers; and if he again takes up the use of it he will pay you for it. His name is J. E. Ried, Greensboro, Greene Co., Ga.

T. E. RIED.

Greensboro, Ga., July 2, 1887.

I have been thinking of quitting tobacco for some time, but could not get exactly ready to make the commencement. Now, if you will send me a smoker I will promise faithfully to never chew any more of the filthy stuff; and should I ever use any more I will pay you \$1.00 for the smoker.

Luttrell, Ala., July 1, 1887.

S. C. STONE.

I quit using tobacco the 12th day of March, 1884, and have not used any since, and I never intend to use any more. If you think I am entitled to a smoker, I should be very glad if you would send me one; and if I should ever use the weed again I will send you the price of the smoker.

J. OFFUTT.

Derden, Tex., June 22, 1887.

ANOTHER NAME FOR THE TOBACCO COLUMN.

Mr. A. Y. Gulley, 60 years old last May, has been using tobacco for 50 years, and he now promises to quit if you will send him a smoker, and to pay for it if he ever uses tobacco again. He was so unfortunate as to have his house and nearly all it contained burned up a short while ago; and among his other losses were several colonies of bees. He saved one colony only; and as he is very fond of bees he hopes to get a start again.

WM. E. CUNNINGHAM.

Hartwell, Ga., June 13, 1887.

It has been a long time since I wrote you. I want you to send Ben Miller, Oakland, Colorado Co., Tex., a smoker. He promises to quit tobacco, and also promises to pay if he uses it again. He can not write, and therefore requests me to write for him. Also please send one to uncle G. R. Berry, Lampasas, Lampasas Co., Tex. He is an old man and well to do, and says he is able to pay for a smoker; but if he takes the pledge and the smoker as a reminder, it will help him to fight the battle.

AMANDA ATCHLEY.

Lampasas, Tex., July 9, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

FOUL BROOD.

AS I promised in our last issue, I will now proceed to give further facts in relation to foul brood; but before doing so I must preface a little.

I have found it *exceedingly* difficult to arrive at any thing definite. Certain pet theories, the truth of which I thought I had or could establish, I had to abandon. Over and over again I have had to change my mind, until absolute certainty seemed well nigh unattainable. Inferences based upon insufficient or false data have done not a little to make our knowledge upon the subject of foul brood perplexing and uncertain. In view of this I have tried to report only such as I felt satisfied at the time were facts and not feebly supported theories. For the same reason I have hitherto not thought it best to say much concerning acid treatments which I have been trying for the last three or four months. It is with some hesitation that I consent to do so now; and were it not for the fact that my present knowledge of carbolic and salicylic acid treatments might render assistance to some brother bee-keeper experimenting in the same line, I would refrain from making any mention of them until I had fully satisfied myself as to whether they were effective or not.

THE CONSIDERATION OF DIFFERENT METHODS OF CURE.

Complete extermination by fire, of a diseased colony and all its belongings, is effective as far as the cure of the colony *itself* is concerned; but in burning up a colony it is next to impossible to destroy *every* bee. One, and more probably a dozen, inmates of the diseased hive will get back to its old stand. Of course they will enter the nearest hives and so carry the infection. Aside from this, complete extermination is too expensive.

THE STARVATION PLAN.

While this method is also effective as far as the cure of the colony *itself* is concerned (notice the italicized word), yet the disease is spread in much the same way as the first case; that is, the bees on being put back into entirely different quarters on their old stand will naturally seek to find their old brood-nest in others adjacent to their old stands.

I have referred to this intermingling of bees once before; but it is nevertheless a fact, and it has been demonstrated over and over again. In a word, then, my objection to the two plans of treating a colony just mentioned, is, that, while a cure is effected for the colony *itself*, yet the cure is at the expense of giving the disease to the neighboring hives.

TREATING WITH CARBOLIC ACID.

Well, then, now to the point: We want a method of treatment which will not only cure the colony itself, but prevent the *spread* of the disease to *other neighboring hives*. With this end in view I have been experimenting with salicylic and carbolic acid.

Our method of administering the acids is somewhat different, I believe, from the methods usually employed. I will first speak of carbolic acid.

This, as far as we are able to observe up to this writing, *seems* to prevent the spread of the disease to neighboring colonies; and we think, when properly administered, it checks the disease in the hive itself, and finally cures it. Our method of treatment was only briefly outlined in our last issue. Since then we have modified the plan somewhat, and I will therefore recapitulate in part.

Get a bottle of pure carbolic-acid crystals. Be sure that the latter are white. Your druggist may try to convince you that the yellow are just as pure; and if he does not have the crystals he may try to sell you the liquid. Get what you call for or none at all. The bottle which I got will hold nearly a quart of crystals, and cost 50 cts. This amount will make over a barrel of liquid when reduced for the bees. Having procured the crystals you are to dilute them by weight, avoidupois. I say avoidupois, because this will be more convenient. With a pair of accurate scales, weigh out exactly one ounce of crystals. The easiest way to do this is to place the receptacle (a small teacup, for instance) on a pair of scales with which you can take out the tare of the cup. Place the bottle in the sunlight, or near a stove, and let a few of the crystals melt. Now pour into the cup until the scales show exactly one ounce. The crystals, when melted in the cup, should look a little yellow and oily. Having done this, weigh out 500 ounces (31½ lbs.) of water. Heat it, and then thoroughly mix the ounce of melted crystals with the water, and allow it to cool.

After sundown, open your diseased hive and uncap every single brood-cell of all the combs, whether diseased or not, with a wire brush or coarse comb. Be careful not to mutilate the larvae any more than necessary. You must rake the cells open, not strike the brush into them. With a spray-diffuser, spray a fine mist over the bees, brood, and the entire inside of the hive.

Be careful not to get too much on the bees and brood. By no means drench them, or you will either kill the bees or cause them to leave the combs and cluster on the outside of the hive. The robbers are then pretty sure to take possession and — you know the rest — your labor is for naught; nay, you are a great deal worse off than before.

I have tried yucca brushes to paint the combs and for spraying bees. I have tried using a watering-pot; but these drench the bees so that the results are apt to follow as I have described. The only thing that you can use with any degree of success is an atomizer. In three or four days after the first spraying, spray again, but do not uncup; and so on for a couple of weeks.

To those of you who can not get an atomizer, we will furnish you one for spraying a few colonies, for 75 cts., or 10 cts. extra by mail.

If you can not get the carbolic-acid crystals you call for, write us. We can not state yet what we can furnish it for.

Now, my dear reader, I have given you full particulars in regard to the treatment of diseased colonies with carbolic acid. Although the acid treatment has so far been very promising, I am not sure that even that will be an ultimate success. Remember the point in its favor so far is, that it prevents the spread of the disease into other healthy colonies. I shall have something further to say about carbolic acid in our next issue, and also give the reasons why I prefer carbolic acid to salicylic.

ROBBERS.

In consequence of the great scarcity of nectar and the dry weather, robbers are most persistent in their efforts to steal. We manage to get along in the daytime after a fashion, with the tent, but the little thieves have learned the trick of dropping down in the grass around the bottom fringe of the tent and crawling under. We are obliged to do some of our work by twilight.

HONEY THAT FOAMS IN THE CELLS.

WHERE DID IT COME FROM?

I SEND you by this mail a sample of honey. Can you tell what it is? Is it of the celebrated bark-house variety—something I never saw? In case it is not, what then do you think of it for wintering?

The honey season has been a poor one; very little clover, and no basswood at all. July 12th I extracted what I thought would save the bees from starving during the honey-dearth, which generally sets in about July 15th and lasts till late in August. But in spite of the honey-dearth, my bees went to work with a will. Then the combs soon began to fill, and the honey looked nice and transparent in the comb; but as I came to extract it I found it dark. My first thought was honey-dew; but when I hunted up the description of the latter I began to think mine is not dark and bitter enough to be the real stuff. But, however, it is the queerest thing I ever saw. When first gathered it foams in the comb, like soapsuds, and some swarms hang outside for lack of room, and, in reality, they have nothing in the comb but a little foam. They draw the cells up, cup-shaped, and then put a convex cap on it, as on drone brood. When I pull the capping off there is nothing but a little foam in the cell, hardly enough to form a drop. Others, however, work it in a more business-like manner. They fill the cells full, avoid fanning, to a great extent, and cap the cells in the ordinary way. I have tried to trace the bees, but generally lose sight of them when they approach the woods and marsh, but I am a good deal of the opinion they are in the marsh or else go across it.

J. JOHANNSEN.

Port Clinton, O., July 27, 1887.

Friend J., the sample you send may be honey-dew, or the secretion of aphides; but if so, it is lighter in color, and rather better in flavor, than the general run of aphid honey. I have before heard of honey that foamed out of the cell, and I believe this has often been the case during our wintering troubles and spring dwindling. If the honey finally settles down, and is capped over, with the cells full of thick solid honey, I think I would risk it: if it remains foamy, I do not believe I would.

KIND WORDS FROM OUR CUSTOMERS.

The goods came to hand to day. They beat any thing I have ever seen in that line. A. BAGLEY.
Siloam, Ark., Aug. 8, 1887.

Goods are at hand, and we are much pleased. Mrs. K. says she thinks your profit is small on the 25-c. socks, for 50 cts. would not more than buy such hose here. MILTON KNOWLES.
Crystal River, Fla., Aug. 2, 1887.

My little adv't in last GLEANINGS has brought all the orders that I can possibly fill. I very much dislike to cut down prices of queens, but I thought that dull times and poor honey seasons demanded it. Please announce that I have no more queens to spare. WALTER POWDER.
Groesbeck, O., July 14, 1887.

THOMAS HORN.

In the Thomas Horn case I fail to see where you have been at fault; and your offer of settlement must satisfy the most unreasonable ones. I sent Horn \$1.00 for a tested Italian queen, and received nothing. I am not willing it should be your loss, so please mark my claim settled.

E. VAN FRADENBURG.

West Fulton, N. Y., July 26, 1887.

PAYING ANOTHER'S DEBTS.

I wrote you yesterday, ordering queens on Thos. Horn's account; but after due consideration I can not see how any man can consistently ask you to pay Horn's debts, and I do not think that any one can honestly hold you responsible for them. Now, then, I countermand my order, and thank you the same as though I had received the bees.

Edgerton, Kan., Aug. 2, 1887.

B. T. DETAR.

CHEAP AND GOOD. THAT MAPLE SUGAR.

The box of goods ordered of you came all right, and every thing was entirely satisfactory. The articles ordered were cheap, and good too. I have been buying maple sugar for 25 years past; but never, in all that time, got any pure, in my opinion, until I received yours. It is absolutely pure, and of the best quality. Many thanks for promptness and low prices.

WM. M. KEER.

Salineville, O., Aug. 5, 1887.

THE NOVICE EXTRACTOR.

The goods came on the 24th, in perfect order, freight reasonable. Accept thanks for your excellent manner of packing. The extractor is the first "Novice" I ever saw; and I must say I like it much better than I expected to—in fact, I could not be better pleased with one. I gave the solar wax-extractor a trial yesterday and found it satisfactory for extracting wax. I see by the wrapper on GLEANINGS my subscription has expired; as I can not think of doing without it, send it on another year.

MISS A. M. TAYLOR.

Mulberry Grove, Ill., June 28, 1887.

THE BEE-KEEPER'S HAT.

My buckwheat came sooner than I expected. I have it sown, and now it is raining almost a deluge. My clover seed is all right; and the hat—well, I don't see how any bee-keeper can afford to do without one when the cost is so trifling. I fear I shall have to get me another, as my girls have captured mine already.

THOMAS HORN.

As to the Thomas Horn business, I consider you an honest man. You put the advertisement in your paper for us to read, and I and many others thought we might make a good thing out of nothing. We were all more dishonest than you, for we wanted something without paying for it. I don't think I would pay a red cent to any one of his dupes, as you put the adv't in as all other periodicals do, thinking he was honest.

W. K. JAMES.

Loudon, Tenn., Aug. 4, 1887.

CONVENTION NOTICES.

The Southwestern Iowa Bee-keepers' Society will hold its next annual meeting at Emerson, Mills Co., Ia., on Thursday, Sept. 1, 1887. All interested are invited. E. W. FITZER, Sec.
Hillsdale, Ia.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG 15, 1887.

When thou passest through the waters, I will be with thee; and through the rivers, they shall not overflow thee. ISA. 43:2.

SENDING IN ORDERS FOR GOODS WANTED NEXT SEASON.

WITH the poor honey crop that has been secured in most localities, we presume it will not be a very great inducement to make purchases so long ahead. Where one has money, however, that he has no particular use for, quite a saving may be made by purchasing in the fall, especially where you have decided as to what goods you expect to use, so there is almost no possibility but that they will be wanted. It is also very convenient to have the goods on hand all ready for use long before they are needed; and it is such a convenience to us to fill orders during these months of comparative leisure, we have decided to make the large discount on orders received during the month of September, as given in the next column.

THE AUSTRALASIAN BEE-JOURNAL.

JUST as we go to press, Vol. I. No. 1 of the *Australasian Bee-Journal* comes to hand. It is edited by I. Hopkins, and published by Hopkins, Hayr & Co., at Auckland, N. Z. It is well printed on good paper, and altogether in make-up and general arrangement it presents quite a creditable appearance. Mr. Hopkins was the editor of a former journal, entitled the *New Zealand and Australian Bee Journal*, which, after two years of existence, died for want of patronage (but not, we believe, from the lack of editorial talent). Since this time the progress of apiculture has so far advanced in Australia and the neighboring islands that the present management feel warranted in starting another journal.

GETTING A GOOD YIELD DURING SEASONS THAT OTHERS GET LITTLE OR NONE.

WE have two bee-keepers in Medina County who have secured quite nice crops of beautiful comb honey. One is W. H. Shane, of Chatham Center, and the other is M. G. Chase, of Whittlesey. Both of them use 1½-inch sections — the kind that D. A. Jones sends out as his regular-width sections. The honey is the nicest we ever handled. Mr. Shane has this season secured about 6000 lbs.; and, strangest of all, he has always had a crop of fine honey ever since he commenced keeping bees, and he keeps this up right along, even when bee-keepers north, south, east, and west, universally say there is no honey at all. It is just so in market-gardening. Give us a man with sufficient energy and enterprise, and he will have a crop, no matter what the season may be. We have just paid 16 cts. for over half a ton of the above honey.

SPECIAL NOTICES.

DISCOUNT ON GOODS BOUGHT THIS FALL FOR NEXT SEASON'S USE.

AFTER Sept. 1, until further notice we will give a discount of ten per cent on goods strictly for next season's use, except the following: Machinery of all kinds for manufacturing; all tin and glass honey-receptacles; tin plate; all counter goods. On Simplicity, portico, and chaff hives, we can give only five per cent. The principal goods included under the 10% discount are foundation, frames, sections, zinc, extractors, comb-foundation machines.

A FOUR-COLOR LABEL FOR ONLY 75 CTS. PER THOUSAND.

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

EXTRACTED CLOVER HONEY WANTED.

SINCE our last we have sold out entirely our stock of extracted clover honey, and shall have no more to offer till we succeed in getting some more. We shall be pleased to receive samples (with your name and address plainly marked on them), and the price you will sell for of either this or last year's crop, clover or basswood extracted honey. If you have not any thing to send a sample in, remember we will mail you, free, a small vial in a wooden block, in which to send us a sample. Remember, too, that we will pay more for honey in our 60-lb. square shipping-cans than in any other package. We want only first-class honey.

LATER.

WE have just sold the last of our stock of extracted basswood honey, and can fill no more orders till we get another lot. We have one case of 2 cans of raspberry honey at 7c per lb. We have also 12 five-gallon iron-jacket cans of a poorer quality of fall honey, 50 lbs. to the can, that we offer at 6 cts., can included. The can is worth 50 cents.

WHITE COMB HONEY.

WE have closed out our entire stock of old comb honey, including the large lot of glassed honey we have mentioned several times. We have, however, secured some of the nicest white comb honey of this year's crop that we ever handled. It is in sections 1½ wide, averaging about ¾ lb. each, 28 sections in a single-tier case. This honey is so nice that we shall have to get 18 cts. per lb. in case lot, case included.

ASH KEGS FOR EXTRACTED HONEY.
16-17d M. Isbell, Norwich, N. Y.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

FOR SALE--A FARM IN TENNESSEE

A 90-acre farm, 14 miles from Nashville; heavily timbered, 50 acres with a new rail fence, about 15 acres clear, half of this in a young flourishing orchard; ¼ of an acre in grapes. Plenty of room for a large family; a good stable for about 15 head of cattle, good ice-cold spring water, shop with a water-wheel suitable for hive-making, or to turn a corn-mill, with farm implements, 50 Italian bee swarms in Langstroth hives, 18 head of cattle; horse and wagon; a French-buhr mill, and a common thrasher, on the place, to be run by water power. All for \$2500. A very good place for a man to start a saw-mill, by steam or water power. For particulars, address
I. LANZ,
16d Joelton, Davidson Co., Tenn.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED
AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfid

A. F. Stauffer, Sterling, Ill.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 25c per lb., or 28c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

CHROMO CARDS * ITALIAN QUEENS. ITALIAN QUEENS * CHROMO CARDS.

Hurrah for the Fair! Did you see our ad. last issue? Keep your eye peeled. Don't be a bat. Get out of your old-fogy rut. We have a brilliant circular. If you wish to be convinced, cast your line this way.

J. H. MARTIN,

Hartford, Wash. Co., N. Y.

ITALIAN BEES and QUEENS AT A VERY LOW PRICE.

ADDRESS OTTO KLEINOW, Detroit, Mich.
(Opp. Fort Wayne Gate). 16d

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

Has published a neat little book of 45 pages, entitled "The Production of Comb Honey." Its distinctive feature is the thorough manner in which it treats of the use and non-use of foundation. Many other points are, however, touched upon. For instance, it tells how to make the most out of unfinished sections, and how to winter bees with the least expense, and bring them through to the honey harvest in the best possible shape.

Price of book, 25 cents. Stamps taken, either U. S. or Canadian.

Fine Italian Queens, reared from best selected, tested, imported mother, 75 cts. each, by return mail. 10tfidb

VIRGINIA

Land Agency. Cheap Farms.
Lists Free. GRIFFIN &
JERVIS, Petersburg, Va.

200 PEKIN DUCKS.

\$2.00 A PAIR, OR ANY NUMBER AT
\$1.00 EACH, BY EXPRESS.

Pay better than raising chickens; no creek necessary. Extra large; two-thirds grown; very hardy; no trouble to raise. Satisfaction guaranteed.

16-18db

D. G. WEBSTER, BLAINE, BOONE CO., ILL.

SHIPPING GRATES

THE BEST,
THE CHEAPEST.

Write for prices.
1tfidb

G. B. LEWIS & CO.,
Watertown, Wis.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; C. H. Green, Waukesha, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phila. Pa.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y., G. B. Lewis & Co., Watertown, Wis., E. F. Smith, Smyrna, N. Y., J. Mattoon, and W. J. Stratton, Atwater, O., Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,

3btfd Hamilton, Hancock Co., Illinois.

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.

—SEND FOR MY NEW PRICE LIST.—

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.
4tfidb

Choice Italian Queens.

One untested, 75 cents; six, \$4.00; twelve, \$7.00. Tested, \$1.00, from natural swarming. 12-16db
Merican Stubbens, Oxford, Butler Co., O.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent by mail for 10 cents. Address
6tfidb HENRY ALLEY, Wenham, Mass.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 1tfidb

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Apply to **CHAS. F. MUTH & SON,**
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to
Bee-Keepers." 17fdd

FOLDING BOXES.
Our Cartons for enclosing Section Honey are the best & lowest priced in the market. Made in one piece. With or without Tape Handles. With Mica Fronts or without. In the Flat or set up. Printed or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. Price List Free. Samples 5c.
14 oz. Glass Jars \$5.25 per gross, including Corks & Labels. 11-2 & 2 gross in a Case. Catalogue of Honey Labels free.
A. O. CRAWFORD, S. Weymouth, Mass.

W. Z. HUTCHINSON, ROGERSVILLE, GENESEE CO., MICH.,

Has published a neat little book of 45 pages, entitled "The Production of Comb Honey." Its distinctive feature is the thorough manner in which it treats of the use and non-use of foundation. Many other points are, however, touched upon. For instance, it tells how to make the most out of unfinished sections, and how to winter bees with the least expense, and bring them through to the honey harvest in the best possible shape.

Price of book, 25 cents. Stamps taken, either U. S. or Canadian.

Fine Italian Queens, reared from best selected, tested, imported mother, 75 cts. each, by return mail. 10tfdd

VIRGINIA Land Agency, cheap Farms.
Listed Free. **GRIFFIN & JERVIS,** Petersburg, Va.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

SHIPPING GRATES THE BEST, THE CHEAPEST.

Write for prices.
17fdd

G. B. LEWIS & CO.,
Watertown, Wis.

WE ARE READY TO RECEIVE

SHIPMENTS OF NICE COMB HONEY

In 1 and 2 lb. Sections,

For which we shall pay cash, or sell on commission, to suit shipper. Correspondence solicited.

17-18d **CHAS. F. MUTH & SON., Cincinnati, O.**

WANTED.

To correspond with parties who have any honey, apples, potatoes, peaches, or fruits and vegetables of any kind for sale or shipment.

EARLE CLICKENDER & CO.,
117 South 4th St., Columbus, Ohio.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdd

FOR SALE CHEAP.

An apiary of 75 stands of bees, with 10 acres of good land; locality is good; has a carp-pond stocked. Will sell all bee-fixings. Would take a good team in exchange for part pay, or \$1000 will buy the whole. It is a good bargain. Correspondence solicited.
JOHN CROWFOOT,
17d **Bloomington, Van Buren Co., Mich.**

FENCE Best and Cheapest Machine in the U. S. for weaving Picket and Wire Fence to the posts in the field. Not excelled by any for ease, speed, perfect work and low price. Illustrated circular and terms **FREE.** Address, **S. H. GARRETT,** (Patentee and Manufacturer), Mansfield, Ohio.

GET YOUR QUEENS FROM AN EXPERIENCED BREEDER, AND PAY A FAIR PRICE.

I am now filling orders for pure Italian queens (cells built in full colonies) for 75 cts. each, safe arrival guaranteed, and every queen warranted to be mated with a pure Italian drone. I am three miles from any other race of bees, and have not had to replace a queen that proved mismated, this season. My strain of bees was developed from queens personally selected from the apiary of W. W. Cary, and from the best queen obtainable from G. M. Doolittle. Send for circular, with recommendations from large honey-producers. Address

17d **JAMES WOOD, North Prescott, Mass.**

NOW IS YOUR CHANCE!

The rest of the season I will sell tested Italian queens for \$1.00 each; selected tested, \$1.50; untested, 75 cts. Try them, and you will not be disappointed. Address **J. F. HIXON,**
17d **Lock 53, Wash. Co., Md.**

BY SENDING 30 CENTS

in stamps, you will get by first mail a **HANDSOME BOX** of note-paper and envelopes **FOR LADIES** and containing new put up specially **FOR LADIES** Pen and Pencil. Address **GEORGE E. STEVENS,** BOOKSELLER and STATIONER, CINCINNATI, OHIO.

THE VERY BEST.

Select Italian queens to breed from, by return mail, only \$1.00 each. Full colonies also for sale.

Address at once **S. F. REED,**
16-17d **N. Dorchester, N. H.**

FINE RUBBER PRINTING-STAMPS FOR BEE-KEEPERS, Etc.

Send for catalogue. **G. W. BERCAW,**
9-10-11-13-14-15d **Fostoria, Ohio.**

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—The demand from manufacturers is very good of late for extracted Southern honey, and fair for clover honey in small packages for table use. Our stock of Southern honey has been reduced considerably, and we shall be in the market again this fall. There were few arrivals lately, and prices may be quoted at 3@7c on arrival, according to quality.

Comb honey has been sold out, perhaps better than ever before at this time of year. Only remnants of dark honey are left over. Choice white comb honey would bring readily 15c in the jobbing way. No arrivals of new comb honey have reached our city yet, that we know of.

Beeswax is in fair demand, and brings 20@22c for good to choice yellow on arrival.

Aug. 19. CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Ave's.,
Cincinnati, Ohio.

St. LOUIS.—*Honey.*—We quote choice comb 10@12 cts.; latter is for choice white clover in good condition. Strained, in bbls., 4@4½ cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted, in bbls., 4½@5½ cts.; in cans, 5½@6 cts.

Beeswax, 21 cts. for prime.

Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

Aug. 25. D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

NEW YORK.—*Honey.*—Our market is opening up earlier than usual, and at higher prices. We quote as follows, until further notice:

Fancy white, 1-lb. sections, 16@18; same in 2-lb. sections, 13@14; fair to good, 1-lb. sections, 13@15; same in 2-lb. sections, 10@12. White-clover extracted, in kegs or barrels, 7@8. *Beeswax*, 21@22.

Aug. 24. MCCAUL & HILDRETH BROS.,
28 and 30 West Broadway, New York City.

COLUMBUS.—*Honey.*—Our market is no better off than last reported. We can't hear of any, scarcely, and no one will put a price. We are having a number of calls, but no honey to fill orders. We are still in hopes that we shall be able to get honey from some locality. There can be no price put upon it, as we can't guess the extent of the scarcity. So far there is none to get here.

Aug. 23. E. CLICKENGER & Co.,
Columbus, Ohio.

KANSAS CITY.—*Honey.*—White comb, 1-lb. sections, 16@18c; dark, 15@16c; white, 2 lbs., 15@17c; dark, 2 lbs., 14@15c; California, white, 1 lb., 15@17c; dark, 1 lb., 14@15c; white, 2 lbs., 15@16c; dark, 2 lbs., 14c; California extracted, white, 7@7½c; dark, 6@6½c. No white-clover extracted in market.

Beeswax.—No. 1, 20@22c; No. 2, 16@18c.

Aug. 24. CLEMONS, CLOON & Co.,
Cor. 4th & Walnut Sts., Kansas City, Mo.

MILWAUKEE.—*Honey.*—This market is in good condition to receive shipments of honey—comb honey wanted. New 1-lb. sections, white, 16@17; same, in 2 lbs., 14@15. New extracted, in barrels, 7@7½; same in kegs, 7½@8. New extracted, in kegs, dark, 6@6½. We would advise shipments.

Beeswax, 25c. A. V. BISHOP,
Aug. 22. Milwaukee, Wis.

CLEVELAND.—*Honey.*—The market is in excellent condition; all receipts to date have been promptly sold at 16c for best 1-lb. white unglassed, and there is now every indication of a slight advance; 2-lbs. would sell at about 2c less. Choice white extracted is wanted at 7@8. *Beeswax*, 25. A. C. KENDEL,
Aug. 23. 115 Ontario St., Cleveland, Ohio.

KANSAS CITY.—*Honey.*—Choice white 2-lb. sections, 15c; dark, 2 lbs., 12@13c; choice white 1-lb. sections, 18c; dark, 1 lb., 14@14c; California, 2 lbs., 13@15c. Extracted, choice white, 8@10c; dark, 5@6c; California white, 8c; amber, 6@7c. *Beeswax*, 20@22c.

Aug. 25. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

St. LOUIS.—*Honey.*—There is a little better feeling in the honey market. From our information, crop will be short fully one-third from last year's crop, and in some districts almost entire failure. Choice white-clover comb honey, 1-lb. sections, 12@13c; fair, 10@11c. New white clover, extracted, in cans, 7@8c; bbls., 5@6c. Southern honey, bbls., choice, 4½@5c; fair, 3½@4c; baker's, 3@3½. *Beeswax*, steady, 21c. We look for good active demand for honey this fall.

W. B. WESTCOTT & Co.,
Aug. 25. 103 & 110 Market St., St. Louis, Mo.

CHICAGO.—*Honey.*—Honey is in brisk demand in a small way at 17@18c per pound for white 1-lb. sections. Extracted is also active at 6@7c for white. There is very little comb or extracted honey on this market. *Beeswax*, 22@24c.

R. A. BURNETT,
Aug. 23. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—The market is entirely bare of old honey. We expect new honey about the first of the month. The price will range, for white clover, from 13@15c. Do. 2-lb., 10@12c.

Aug. 24. THURBER, WHYLAND & Co.,
New York City.

DETROIT.—*Honey.*—New comb honey is very scarce, and quoted at 16@18 for best white comb in 1-lb. sections. Extracted, 10@12c.

Beeswax, 25c. M. H. HUNT,
Aug. 10. Bell Branch, Mich.

BOSTON.—*Honey.*—Present indications point to a very short crop of honey, and present prices for new honey are from 20@22c for 1-lb. sections, and 18@20c for 2 lbs.

BLAKE & RIPLEY,
Aug. 25. 57 Chatham St., Boston, Mass.

WANTED.—I should like to buy 100, 200, or 300 lbs. of extracted honey, if I can get it cheap enough. I should like clover honey.

Mrs. M. A. WILKINS, Seneca, Nemaha Co., Kan.

WANTED.—To purchase from one to five thousand pounds choice white-clover honey in one-pound sections. Crates to average about 25 lbs. each.

I. T. CARSON & Co.,
15-16d 325 West Main St., Louisville, Ky.

A CARD.

Having resigned my position with Thurber, Whyland & Co., I beg to inform you that I have assumed the management of the honey, maple sugar, and wax department of the well-known house of F. G. Strohmeier & Co., New York. I feel assured that, with their facilities, I can meet your wants in the above line. Thanking you for past favors, and asking for the future your kind consideration, I remain yours very truly,

H. SEGELKEN.

TO BEE-KEEPERS.

In the interest of the bee keeping public, as well as in order to increase business, we wish to make generally known that we deal especially in honey and beeswax. Our personal acquaintance with the trade all through this country, and our connections in foreign markets, enable us to handle any quantity of comb and extracted honey and wax most advantageously. It is our aim, not only to supply the demand, but also to create demand, especially in those parts of the country which heretofore have been overlooked or neglected. Honey at present prices ought to be used as a regular food-product by all classes. It is to the interest of every thoughtful apiarist to increase the consumption in order to equalize the rapidly increasing production, and thus to uphold prices. But it is also absolutely necessary to offer to consumers the pure and perfect article only, in order to maintain their confidence. With the co-operation of the bee-keepers, we can attain our object. We solicit correspondence and consignments. On the latter, cash will be advanced. Prompt returns guaranteed.

F. G. STROHMEYER & Co.,
122 Water St., New York, August, 1887.

Referring to the foregoing circular we beg to call your attention to the fact that we are the only house in the United States making a specialty of the following articles:

Comb and extracted honey; maple sugar and maple syrup; beeswax; Brazil (or Carnauba) wax; Japan wax; African wax; paraffine; ceresin; ozokerite; stearic acid; bitumen; laundry wax. Thus offering a complete line of goods, we guarantee the same to be always of best and carefully selected quality, all of them bearing our trademark.

F. G. S. & Co.

If you Wish to Obtain the
Highest Price for Honey

**THIS SEASON,
WRITE TO HEADQUARTERS,**

F. G. STROHMEYER & Co.,
Wholesale Honey Merchants,
122 Water St., New York.



Vol. XV.

SEPT. 1, 1887.

No. 17.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75, 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

THE BEST FOUNDATION.

DR. MILLER TELLS US WHY HE HAS GIVEN UP THE GIVEN FOUNDATION, ETC.

I USED Given foundation, and liked it better than any thing I had previously used. Perhaps there was some prejudice about it, and I don't know that I could have proved it was better; but the bees took hold of it nicely, and the wax in it seemed stronger than in other kinds of foundation—at least, the side walls did. But as you say, friend Root, I have given up Given, and for the same reason, probably, that others have—simply because it's not on the market. You never offered it for sale, and I'm not sure that anybody did; and if it had been on the market, I think I should never have given up using it—at least, not till last spring. If I remember rightly, the Dadants refused to make it, because they couldn't succeed in making a nice article, and perhaps that's the reason you and others don't make it. I don't think I ever saw Given foundation as uniform in thickness as that made on a mill; but in spite of that, if it had been as readily obtained I should have taken it in preference to any other up to the time I was in Medina last spring.

One day while I was sitting in Ernest's corner talking, Mr. Calvert came in with a long strip of foundation, and said, with a smile beaming all over his pleasant face, "We've made a discovery;" and then he showed us the foundation. Judging from its looks alone I should prefer it to the Given, and I got a lot of it; but owing to the failure of the season it has never been used.

COMMON SENSE IN DOCTORING.

I am heartily glad, friend Root, that your wife, or somebody else, is bringing you to your senses.

Perhaps you remember how I urged with all my might that the lounge was the medicine you needed; and I think *sometimes* you rested yourself when exhausted, by rushing about outdoors just about in the same way that a drink of whisky would have rested you.

But I can hardly see how the tired housewives are to follow your advice to rest before dinner. In most cases (ask your wife if I am not right) the attention of the wife and mother is urgently needed in getting the meal ready up to the time of sitting down to the table, and we hardly want to eat without the presence of the mother at the table; so where is the chance for the nap before dinner? But an after-dinner rest can be taken; and upon this the husbands, sons, and daughters should insist. I know an old lady who takes a snooze every day after dinner, sitting in her chair, and her daughter worries that there is just so much delay in getting the work done up. It is not unkindness, but ignorance, on the part of the daughter; for if she understood that that snooze is just lengthening so much the life of a fondly loved mother, the old lady would find herself forcibly taken and laid upon a bed for a more comfortable nap; and we be to the one who should wake her! Two of the prevailing feminine sins are making up a bed as soon as it is vacated in the morning, and rushing at the work as soon as dinner is over.

KEEPING QUEENS OUT OF SECTIONS.

I wish I knew the place to which friend Howell, on page 623, refers. I don't remember distinctly about it, but this much I know: That very rarely does a queen trouble the sections (so rarely that it's hardly worth considering), and there is no secret about it. I am not sure that I have any thing to do with the matter. The slat honey-board, I suppose,

is something of an obstacle; the presence of separators may help, although I have no trouble without separators, and the distance of the sections from center to center (about two inches) also helps. Still, I have not had trouble, even with 1½-inch sections. Some say the queen goes up to lay drone eggs because there is no drone comb below. I have generally no drone comb below, but then the sections are filled with worker foundation. So in my case, the conditions are, the slat honey-board, separators, and two-inch sections filled with worker foundation. I suspect that the essentials are the honey-board and full-sized starters. Possibly if the brood-chamber is too much contracted, the queen might be forced up.

THE BEE-KEEPER'S HAT.

I have worn one nearly all summer, and I like it better than the five-cent hat, which is high praise. The women-folks prefer the five-cent hat because of its more drooping habit, thus making them less sunburnt; but I don't think there is any thing wicked in being sunburnt.

GETTING A GOOD CROP IN ANY SEASON.

There you go again, friend Root, riling me by your remark on page 637: "Give us a man with sufficient energy and enterprise, and he will have a crop, no matter what the season may be." Now, I had this spring the best lot of bees I ever had, and never worked harder to have every thing in good shape, and never had less to reproach myself with as to my own management, but I have no crop. Colonies that were strong and in good condition in the spring, and have continued so right along, have gained not a pound; and when I open them, the vacant, uncapped cells at the top of the brood-combs stare me in the face. Now, will you tell us the management or "energy and enterprise" that would secure a crop in such a case? Heretofore my lack of energy may have been at fault; but with the present season of drought I plead "not guilty."

C. C. MILLER.

Marengo, Ill.

Look here, old friend! aren't you a little cool about taking the position you do, that tired housewives can *not* doctor without medicine, as I have been recommending? Imagine the husband or a child saying to the mother of the household, "Dear mother, we are well aware that your life would probably be spared to us fully ten years longer if you could take a short nap just before dinner: but the way we are situated, I think you will have to do the best you can; and when you die we shall have to get somebody else to take your place. We can not possibly spare you to take your nap, the way things are now; but may be you might get some quinine, or some sort of bitters, of the doctor, that would strengthen you up a little. It is quite likely that it will not enable you to live any longer in the end, but you see it is quite impossible that we should spare you for even twenty minutes, just before dinner time." I want every husband, every son, and every daughter, to read the above and ponder on it. Has it not some sort of application to the state of affairs in your household? — I declare, friend M., I entirely forgot all about you when I made my sweeping assertion. If I should take it back now, you would all say I did it out of respect to present company, and then the rest would all

laugh, and the matter would be worse off than if I let it alone. Why, is it indeed true you did not get any honey at all in any one of your apiaries? I will tell you what the trouble is: You have too many colonies in one location. Dr. Mason, you know, recommends only ten in one place; or, at least, if he did not say that, it was something to that effect. Now, may be if you try again with a small number of colonies in a good locality you will conclude I was pretty nearly right, after all.

GIVEN FOUNDATION.

THE REASON WHY FRIEND HEDDON HAS GIVEN IT UP.

ON page 610, in your foot-notes to friend Hutchinson's article, you call upon me to state what may be my present idea of Given comb foundation, and why I do not handle it now, and why I have changed my mind, etc. How simple, seemingly, complex problems appear, when fully understood! After all I have written and said in favor of the Given press, had I changed my mind, after more experience, it would have been a duty to have publicly stated the change, and the reasons for it, and a duty which I should have promptly and pleasurably fulfilled. Now, if you will look over my writings you will find that, while I have always given a decided preference for the press, as a means of making wax into foundation, I have given the foundation only a little preference, at the same time saying that the best rolled foundation was good enough for any one. The difference is slight, but it has always been, with us, in favor of the Given foundation.

I have worked no less than seven roller mills, of four different makes, and nearly as many different Given presses, and to-day I would use no other machine than the Given press. My preference for it, for speed, ease of operation, etc., is radical. Now, why don't I use it? Why, because I don't use *any*. Well, why don't I deal in Given foundation? Because I can't buy it in large quantities at wholesale rates. I tried to do so, before I adopted the Dadant foundation. No one makes it to wholesale, in sufficiently large quantities to supply me. Some one might agree to, but fail. I can't fill orders with promises. I preferred to become one of Dadant's jobbers. I will tell you why.

1. They make a most excellent article of rolled foundation. It is made upon honor and judgment.

2. They are almost specialists (please remember that I always plead for specialty), and that greatly aids the fact that their work is nearly perfection, and that they are always ready to fill orders promptly.

3. These men are so honest and fair in deal, that no energy need be expended in watching and weighing after them. They seem to have found out that honesty is truly the best business policy, and they appear to feel that there is no pleasure to the heart in injustice. They seem to recognize the fact that virtue is its own reward. I can't agree with many of their mechanical deductions, but I do most heartily indorse their integrity, and their consistency in its adoption and use. In this special sphere, I hold this firm as worthy of the position of a guiding star to our fraternity.

I used to think, and it was nearer true then than

now, that the ownership of from 40 to 50 colonies of bees warranted the purchase and use of a comb-foundation machine; but since the many improvements in its manufacture, I have found that such is not the case. You are very well aware, that not only special skill is required, but special room and fixtures, and plenty of it; and although I now have between five and six hundred colonies, and use foundation in full sheets everywhere, and sell about ten times as much as I use, I prefer to purchase rather than to make my foundation, devoting more time and energy to other departments. When I look at the extremely low prices of your counter goods, I do not forget that specialty in manufacture has done much to aid inventive genius in so cheaply supplying us. JAMES HEDDON.

Dowagiac, Mich., Aug. 22, 1887.

Friend H., you have given Dadant & Son a pretty big puff; but I am glad to see it, because I think they are deserving. In regard to buying foundation instead of making it for forty or fifty colonies, if I am right it depends a good deal on how much spare time the owner has. Where he has not as many irons in the fire as you and I have, friend Heddon, but, on the contrary, has spare time, especially in the fall and winter, he can make very good wages indeed in making his own foundation, and supplying his neighbors for several miles around, even if he does not make a business of furnishing supplies and shipping to order. Since you speak of it, I believe I have never heard any one say that he ever sent an order for foundation to the Dadants, and it was neglected or delayed.

PREPARING FOR WINTER.

FRIEND DOOLITTLE TELLS US HOW TO DO IT AND WHEN TO DO IT.

THAT prince among bee-keepers of twenty years ago, Elisha Gallup, once wrote that August and September were the months in which to prepare bees for winter; and after the experience of last fall and winter (which winter was the worst season for bees ever known in this locality, they being confined to their hives on the summer stands for five months without flight), I am ready to agree with Gallup exactly. A year ago I commenced getting the bees ready in August, finishing in September, and I never had bees winter as well during a severe winter in all of my 18 years of experience. As I am again getting ready for next winter, I thought perhaps some of the readers of GLEANINGS would like to know how I did it. By beginning at this date to put all in readiness as far as possible, I give the bees a chance to get their stores for winter placed just where they wish them, so that, by the middle of October, they are ready to go into that quiescent state so conducive to the best results. Working along this line, I proceed as follows:

I go to each hive, open it, and carefully remove each comb, noting the amount of bees, age of queen, square inches of brood, and pounds of honey. The pounds of honey are found by weighing a few combs of varying fullness till the eye gets so trained that every comb can be counted off as to weight of honey with an accuracy approaching

perfection, while the square inches of brood is gotten by measuring a few different-sized patches, when it is easy to estimate it afterward. The age of the queen is told by looking at the last year's record, if her wings are clipped; if not clipped, I know she is of the present year's rearing, as the wings of all my queens are clipped in fruit-bloom, and the amount of bees is told by observing their appearance on the combs. When I go over the hives in this way, I have some pieces of sections so that, as soon as a hive is closed, I can write down all about the condition of the inside. The piece of section may read something like this: "Aug. 20, 1887; 20 lbs. honey; 450 sq. inch. brood. Bees, plenty, with good Italian queen, reared in '85."

This piece is now laid on top of the honey-board or quilt to the hive, and the cover put on, when two little flat stones are put on the cap to tell me that, inside said hive, they are short of honey, but have brood to spare. For instance, if the stone is at the front right-hand corner, it says, short of honey; if at the left back corner, it says, brood to spare; if at the right back corner, it says, honey to spare; and if at the left front corner, it says, short of bees and brood; while, if all is as I wish it for winter, a stone is placed in the center of the cover. In this way I make these little stones tell me, at a glance over the apiary, just what each hive contains, so that it is now but a few minutes' work to go over the yard and equalize all so that each is in a similar condition for winter, when the little stones are taken off and slipped under the bottom-board of the hive, where they belong when not in use. If any are still short of stores (25 lbs. is what I allow each colony) after equalizing, I feed to make up the deficiency, generally using honey, as I prefer it to sugar stores after repeated trials. As I write this out it looks like a long tedious job, and the readers of GLEANINGS will doubtless say that, rather than go through all this operation, they will simply lift the hives as heretofore and "guess" that all have enough to carry them through. But to handle three or four hives is to become an expert; and if the readers will only try it they will soon find that, after a little, they can count off honey, brood, and bees, as fast as they can handle frames, which, together with the satisfaction of knowing just what each hive contains, will never allow them to go back to the "lifting-guessing" plan again.

Then I have also learned a new plan of uniting nuclei or queen-rearing colonies for winter, so that they can be ready early instead of being only poorly fixed at best when left till October, as they usually are. It is this:

The latter part of August, select the strongest ones from the lot, or as many as you desire to winter, and go to the others and take all but a little brood away from them, dividing said brood among those selected for winter. In doing this I take all the bees along (less the queen) that adhere to their frames. These frames of bees and brood are set right in the selected hives, and so far I have not had a single bee or queen killed. The bees hatching from this brood are the ones which go through the winter, and I like uniting in the brood form much better than in the bee form. The bees left in the now small nuclei are used up, and mostly die of old age by the time I am through queen-rearing for the season. G. M. DOOLITTLE.

Borodino, N. Y., Aug. 18, 1887.

I believe, friend D., the substance of the

above has been given us before—possibly some years ago; and it is quite interesting, to me at least, to know that you have made no material change in your manner. Very likely no change is needed, especially if it is successful. I think I should prefer the slates to the pieces of sections and little stones you use. Perhaps the plan is the best one for you, however. Ernest suggests, while I am dictating this, that the stones have an advantage over the slates, inasmuch as they can be seen quite a distance away, and this surely is a valuable point. In case of your sickness or absence, however, it might be a little difficult for a new hand to get the hang of the meaning of the stones placed in different positions. Doesn't a heavy wind tumble them off sometimes?—Your plan of uniting colonies is similar to the one we have used for many years, only I should make the attempt to put, in some colony near by, the old bees which are left, because I felt sorry for them if for no other reason.

OUR P. BENSON LETTER.

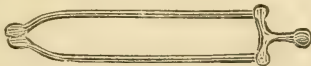
P. Benson A. B. S. His Cattlelog & Prize List Kontinude.

HUNNY STRAINERS—\$1.25.

THESE air made of table cloths kairfoolly wore to the rite thickness, soze to strain the hunny throo and leave the dead bees & bee bred in the cloth. This is less than the cost of matecrial, without chargin enny thing for the trubbel of havin them wore down, but thay ar offered at this low prise for a short time to introjuice them.

HUNNY BOXES—5 cts.

Flattened by the 100 - - - - \$5.25.



COBM EXTRACTORS.

Cobm extractors, per pair - - - - \$.50.

These extractors is yused to lift the cobms out of the hive, soze not to git stung. By taking it at nite, when the bees kant see to fly, the most timid ken extrack the cobms out of the hive without a sting.

TIN PANS FOR SWARMING—\$.50.

These pans is constructked ackordin to the latest improvements of modern sighthens, with thair acowstick properties intensyfyde & condenst, soze to maik a moast outrajis nois whareby the bees is injuiced to lite moar promp than enny other nois.

3-PLY BEE-MITTENS—\$1.30.

These mittens has never bin noan to fale. Thay ar made of three thickness of sheepswool, & giv curridge to the opperrater so be ken go at the bees with undanted bravery.

RESEAT FOR HUNNY—\$2.00.

This reseat ken maik the finest hunny out of harmless materials to be found in evry fammaly, sitch as shooger, wotter, glew, starch, & so forth. The ingredieneces doant cost to eckseed 5 sents a pound, makin the prophet grate. If this is soled at (25) twenty-five sents its a clean prophet of 20 sents. You ken eezy maik 200 pounds in a day besides dooin the chores, and this wood be forty (\$40) dollars a day, or neerly fifteen thousand a yeer. The

exack amount is \$14,600 dollars. As I have onaly a fue of these reseats you better send soon.

WURM ANNIGHHIGHLATER.—\$.75.

Next to the moth miller the wax wurm is the wurst ennemy on the subject to the bee. When a swarm is took up the wax wurm gits into the cobms and eats them up, and it's so hard to find and pick them out that I have devised a implement entitled the wurm annighhIGHLATER whitch is automatic in its axion, and gits out the last wurm.



P. BENSON'S WURM ANNIGHHIGHLATER.

DRIED TANZY, PER PACKIDGE.—\$.25.

To rub on hives to maik swarms stay.

Olways send a little more than the prise, to allow for flucktuashen in the market. If enny of my customers is dissatsifde the munny ken be cheerfooly refunded to me.

In riting letters of inquiry, inclose yure real name, not nesserly for publickashen but as a garn-tea of good faith. Also a postidge stamp.

P. BENSON, A. B. S.

ON THE RIGHT PLATFORM.

OUR FRIEND J. M. JENKINS ON THE SUPPLY-BUSINESS.

FRIEND ROOT:—The honey season has proven a failure for surplus with me, but I think the bees will have plenty for winter. We had a drought in April and May, and that is when our best honey is gathered, and it is the main crop. They are doing as well in summer as usual, but they can't make any surplus of it, and it is not much good any way. But "the harvest" with me in the supply-business has been fair, and I am satisfied. I have taken in about \$1500, or about double what I did last year, and I think my prospects for doubling it again next year are good. I am now building an addition to my factory, that I may have more room.

My business here is small and insignificant compared to yours and probably others'; but I feel sure of success after two seasons' experience, and I am willing to put more into it. I have learned how to greatly reduce expenses and thus increase the profits, and the end is not yet. I might also say, that I have made only one enemy that I know of among my customers, and I don't know whether he failed to answer my last letter for shame or anger, and I don't know how he feels now. I always do my best to please, and give satisfaction, and if differences arise (as they surely will) I do any thing, or offer any thing, to satisfy the customer. I am simply trying to follow the teachings of A. I Root, and of Him who said, "Do unto others as you would have others do unto you." I never want any man to feel that he didn't get his money's worth of me, or that I got the best of him in a bargain. I make as prompt shipments as possible; and if I have to delay the shipment more than 24 hours, I explain at

once and let the customer know what to expect. In our inexperience we have a few times left out parts of a shipment, as rabbits, or pieces of frames, and I always forward the same by postage or express paid, and apologize. Friend R., that is the kind of "platform" I am running on. I tell you all this because I am under everlasting obligations to you, and I feel that you have a right to know what I am doing. I might also add, that I decline credit to all alike.

J. M. JENKINS.

Wetumpka, Ala., Aug. 23, 1887.

BEE-KEEPING AS A LIFE BUSINESS.

C. C. MILLER GIVES US SOME EXCELLENT FACTS IN REGARD TO THE MATTER.

"IT seems a pity he should settle down into nothing but a bee-keeper, when he might be successful in almost any line of business he should undertake." Such expressions I have heard, when, so far as I could see, the only reasons for it were that it was thought the man might make more money at some other business than bee-keeping. I am aware that too much has been said of the bright side of bee-keeping in the way of urging every one into it, and I have protested against it; for in nine cases out of ten, the person who chooses bee-keeping as his life business, *merely* for the money there is in it, will meet with disappointment. But for once I want to take the other side, and say something in the way of urging the choice of this business upon a certain class. Here is a young man about to settle down in life. His college course of study is perhaps finished (and I would urge upon every young man to get a collegiate education, whether he expects to spend his life in apiculture, farm, counting-house, or pulpit); and the question is, whether bee-keeping shall be his vocation. He has aptitude for the business; what little experience he has had in it has been successful; and he would really like to spend his life at it if he thought he could make as much money at it as at merchandise, albeit the confinement of a merchant's life is not to his taste. But the matter of money stands first in consideration, and he decides in favor of mercantile life. My young friend, you are making a mistake. In the first place, it is by no means certain that you will be one of the successful merchants. But suppose you are, and that you make double or ten times as much money as you could at bee-keeping. You go on at your business, looking forward to the time when you can retire, and enjoy life. There are events that may hinder the realization of your expectations. You may not live long enough. If you do, you will find that your tastes have somewhat changed, and that the life to which you have for years looked forward with bright expectations is mainly a disappointment. On the other hand, if you follow your inclinations, and adopt the pursuit of a bee-keeper, there is no necessity for looking forward to a certain time in the future for your enjoyment of life. You can take your enjoyment as you go—mixed, it is true, with pain and toil, but still a life of enjoyment. You have one important advantage over the merchant: your outdoor life gives you a physical vigor he can not enjoy. He has poorer food than you, even if he eats from the same dish, for he has not the same hunger to sate

it. The mere fact of existence is a pleasure to a perfectly healthy animal, be he man or beast; and the man who eats his food with a thorough relish is the better man for it, physically, mentally, and perhaps morally and spiritually.

HIGH VERSUS LOW SALARIES.

There is another view that is worth taking, and it applies to all callings—bee-keeping or what not. Compare two positions in life. A man in Chicago has a salary of \$2000, and his brother in a country village has one half as much, \$1000. Which has the better place? Perhaps the Chicago man, perhaps not. Throwing aside all other considerations, and taking just a dollar-and-cent point of view, if the country man's annual expenses are \$600, and those of the city man's \$1700 (and there may be that difference, even when each seems to be living equally well), the result will be that the country man will lay by one-third more annually than the city man, in which case the \$1000 salary will be better than the \$2000. Suppose, however, that the annual expense in the city is \$1500, and \$600 in the country. In this case, \$500 is annually saved out of the \$2000, and \$400 out of the \$1000. Is the salary that clears the \$500 one-fourth better than the salary that clears the \$400? And it is to this particular point I want to call the especial attention of the young. Nine out of ten of the young will be dazzled by the larger salary; and when to this is added the larger annual saving, the question is definitely settled in their mind. If they think far enough ahead they may find a factor they have omitted from the problem. When the time comes to retire from service—it may never come, and it may be forced upon one before he desires it—when this time comes, the city man will be so fixed in his habits and mode of living, his family in their social circle, that he must continue his same life and same expense of living. Even if he had thought of going back to his former country life, he will now find it impracticable; the rule is, that men do not. Now let our two men be compared after the same number of years of service, say 15 years. In that time the one saving \$500 per annum has \$7500 ahead; and the other, saving \$400 per annum, has \$6000 ahead. But what is this worth to each of them? The first, spending \$1500 per year, can live on his \$7500 just 5 years; and the second, spending \$600 per year, can live on his \$6000 just 10 years. So you see, when looked at from this point of view, the \$1000 salary is worth just double as much as the \$2000. In other words, the \$2000 man lays by each year enough to support him 4 months, while the \$1000 lays by enough each year to keep him 8 months. Some of you young men that are itching to get into places to make money faster, think this over. It may make you a little more content where you are. C. C. MILLER.

Marengo, Ill.

Friend M., while reading your excellent suggestions, a text kept all the while running through my mind. This text is one of my particular favorites just now. Even though most of you have heard it perhaps a hundred times, I will repeat it here: "Lay not up for yourselves treasures on earth, etc. Now, I do believe that too many young men choose an occupation from the standpoint of money, just as you put it; and whoever does this will make a failure in one way if not another. I have had considerable experience in mercantile business,

as well as in outdoor work, and I would not give up the privilege of spending half of my time out in the open air, for any salary that could be offered. It is not only the open air with me, but it is the opportunity of meeting face to face God's work, and of enjoying direct his great and wondrous gifts; and I would not stay in a store, from daylight till dark, as I have done year after year in times past, losing the relish for food, as I used to lose it—losing also the keen zest and pleasure that even existence gives—for any salary that could be mentioned. In fact, I hope that the larger the salary that might be offered, the less I should want it.

A VISIT WITH GILHOOLY.

OVERCOATS FOR BEES, ETC.

I WAS just driving past neighbor Gilhooly's apiary, consoling myself with the thought that I was not the only one in the bee-business who had "got left" this year, when out came neighbor Gilhooly himself, in hat and veil, smoker in hand, and a kind of body-guard of cross bees hanging around him.

"Hold on, neighbor Fowls, I want to talk bees with you."

"Whoa! Well, I have no objections if your escort there don't talk back. But what makes you work so early in the morning, when those fellows are so troublesome?"

"Oh! on account of robbers. I'd rather take a few extra stings now, than to be bothered with so many pesky robbers later in the day."

"But you have a tent?"

"Yes, but it's getting full of holes; and besides, a gust of wind would, likely enough, tip it up just at the worst time."

"I see you are working on that row of new swarms—taking off honey, I reckon?"

"Now, neighbor Fowls, that's downright cruel of you to talk like that; but I suppose I'll have to forgive you, as you're in the same boat. Well, I did take off some unfinished sections there, but I am hunting out the poorest queens, to remove them."

"Going to give them new queens, I suppose?"

"No, I'm just going to double them up. You see, they're light, both in stores and bees; and as I've always lost more of the new swarms, I thought I'd make big swarms of them and see if I can't winter new swarms as well as you do."

"Very good, but your old swarms still have the advantage in one respect, and the most important one too, neighbor Gilhooly."

"What's that—in having a young queen?"

"Yes, that is an advantage if she is a better layer; but that wasn't what I was driving at. Your new swarms have new combs, haven't they?"

"Yes, built on foundation."

"Well, those new combs are colder than the old black combs your old swarms have."

"Do you really think there is so much difference?"

"To be sure, I do. See here neighbor Gilhooly, what was your object in sending that poor neighbor that parcel of bedding last winter?"

"Why, to keep him from freezing. You know his old house lets in the cold; but what's this to do with the bees?"

"Just this: A bee-hive lets in the cold too; and to keep them warm you must give them warmer bedding. You must exchange your new combs for old black ones."

"How do you save the brood in the new combs, and keep the queen from laying in them?"

"Why, that's very simple—by using the queen-excluding honey-boards. Take an extra hive, with your old combs in it, contracted just as you want it for winter, put it on the stand, shake the bees and queen in front, then put your combs of brood in the top story, with queen-excluder between, and leave them three weeks."

"But I can't see that the bees will have their bedding, as you call it, around them—only a few will be crowded in the cells; the rest will be clustered between the combs."

"Where they have eaten out the honey there will be at least half of them encased in a warm overcoat."

"How do you make that out?"

"Why, calling the cells half an inch deep, that would make an inch of empty cells; allowing one-fourth for the aforesaid overcoat, that would be equal to three-fourths of an inch, and you wouldn't have more room than that between the combs."

"Well, your warm overcoats won't help those fellows between the combs much—they'll be in their shirt-sleeves."

"True; but they will keep warm with the warmth of their fellows. Just imagine a crowd of thousands of men, half in overcoats and half in shirt-sleeves, crowded together hundreds deep in all directions, all pressing toward the center."

"Yes, just to get a sight of Her Majesty, the queen."

"Correct; like the English, you know, when every Englishman wanted to see the Queen at her jubilee. Well, I must go on. Get up, Jenny!"

Oberlin, Ohio, Aug. 23, 1887. CHALON FOWLS.

Thanks, friend F. We have enjoyed the account of your visit with Mr. Gilhooly. In regard to old combs versus newly built combs for winter, we have this to say: Last winter we wintered 40 colonies on combs which had just been drawn out on foundation. By far the larger part of these combs had never had any brood in them, and yet every one of the 40 colonies wintered perfectly. I know it is generally considered that old tough combs are preferable; but are we perfectly sure of it? It is true, the old combs are filled with cocoons, and theoretically they would make the combs warmer for the bees. Although you do not say so, yet I suppose that these cocoons are in reality what you call "overcoats;" but do these little overcoats make a very perceptible difference in the way in which bees pass the winter? We should be glad to hear from others.

I think I shall have to correct Ernest a little, in his remarks above. Years ago, when we were more intent on increase than on getting honey, or even rearing queens for sale, we used to have much more trouble in getting colonies through the spring, where they had newly built combs, than with old tough black combs; and I believe it is generally conceded that the old black combs are far the best for the brood-nest for winter.

SWARMING AND SWARM-CATCHERS.

VALUABLE SUGGESTIONS FROM W. F. CLARKE.

FOR one, I have settled down to the belief that swarming is to be accepted as one of the unchangeable conditions of bee-life. In common with many others, I hailed the plan of division sometimes called "artificial swarming," and practiced it long enough to become convinced that it was indeed artificial and abnormal. I never had a stock of bees that was thus started on an independent career, whose energy, industry, and efficiency would begin to compare with those qualities as displayed by a natural swarm. I have also tried clipping the queen's wing, and abandoned it for several reasons. First and foremost, it is a fraud on the bees. Nature is constructed on honest principles, and I believe that even a stock of bees resents deception and imposture. They start for that grand gala-time which Nature provides them once a year; and instead of having a holiday excursion they are obliged to turn back in dire confusion and disappointment. It is their annual celebration of independence; and man, by wicked artifices, prevents their enjoyment of it. They feel and act as if balked, which they are, and no mistake. Again, dissatisfaction springs up in the hive. They become disloyal toward their queen. They don't want a leader who can't lead. Something is the matter with the queen. They cabal, scheme, and finally conclude to supersede the reigning monarch. I have no doubt many of our queen-troubles have arisen from clipping and otherwise disturbing the queen. Furthermore, it is very difficult for me

gone outside my own lot of about an acre in extent, to find a clustering-place, except once.

When things are handy for cutting off the bough on which the cluster hangs, that is a nice way of getting possession of your swarm. But it has its objections. A properly trimmed Norway spruce is disfigured by the removal of an important bough, and the symmetry of an apple-tree is spoiled by cutting off here and there a large branch. It is remarkable what a tendency there is in swarms to pick out certain trees, and they soon get cut out of all shape by sawing off limbs. Besides this, it is not easy to saw off a limb without jarring it; and sometimes at the critical moment of separation between bough and trunk there is a serious jar, and, lo! half the cluster parts company with the rest; or the whole swarm becomes disorganized, and, quick as wink, is "over the woods and far away." If you get your bough and cluster safely to the new hive, you are not beyond the reach of mishap. The queen may rise in the air again instead of going into the hive, and then it is "love's labor lost."

Various devices have been suggested for taking swarms, most of which I have tried and found wanting in some particular or other. I can not discuss them in detail here, for I find that this article is getting lengthy, and the special object of it is not yet reached. I want to describe and illustrate a very simple method of taking swarms, which I have evolved during the season just passed, and found more satisfactory than any other with which I have experimented. The idea of it was evolved from an apparatus figured in the A B C of Bee Culture, page 236, as follows:

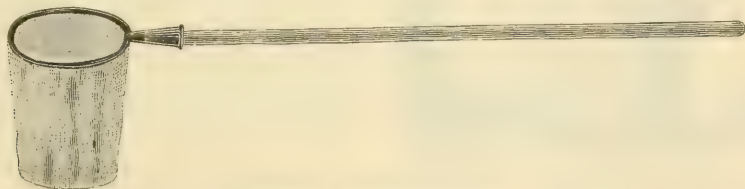


FIG. 1. A SWARM-CATCHER.

to handle a queen without hurting her. I have not that delicacy of touch, nor that control of my nerves, which is necessary for handling such soft-bodied little creatures. I think real injury often done to queens in the process of clipping impairs their efficiency, and leads to their being superseded. I forbear discussing other preventives of swarming, lest this article should become too long.

Taking it for granted that we are going to let our bees swarm within due limits, we ought to arrange accordingly. First, we want a spacious bee-yard, or, rather, bee-garden, for I don't believe in a bee-yard, like a door-yard, devoid of trees and shrubbery. An apiary should be located on a roomy lot, and be environed by evergreens and low-growing deciduous trees. My experience has been, that bees prefer Norway spruces and apple-trees to all others, for clustering on. In my lot they have had a choice of maples, willows, mountain-ash, chestnut, plum, cherry, pear, and various other trees, together with lilac, syringas, and other shrubs, also pines, balsams, and other evergreens; and in over twenty years they have invariably chosen Norway spruces or apple-trees to cluster on. I may add, that in all that time they have never

The drawback to this device is its being horizontal. You must climb a ladder, get even with the cluster, and in such a free position that you can readily operate the handle; for unless, as described in the A B C, you instantly twist the bag so as to confine the bees, a large portion of them will get away, and, in all probability, along with them you will lose the queen. This drawback is obviated by the use of a wooden handle, as shown in Fig. 2. The construction of the swarm-catcher is also shown, together with the manner in which it is shoved under the swarm. The rod is made in joints, the two lower joints being of stout bamboo, and the upper one of tough ash. Fig. 2 shows the device with the lower joint removed, and which I have so far found quite long enough for such swarms as I have taken with it. As soon as the swarm has dropped into the bag, slant the rod a little, give it one twist, and the bees are all your prisoners. Not a solitary one of them can escape, and the bag lies against the rod snug and secure (see Fig. 3), to await your convenience. If the hive is not quite ready for the reception of the bees they can wait a little while. The bag being made of cheese-cloth, or some such porous material, they

will not smother. When all is ready, their infallible entrance into the hive may be secured by the hoop of the bag being so placed that the bees must escape into the hive or not at all.



FIG. 2. W. F. CLARKE'S SWARMING-DEVICE.

The superiority of this plan over all swarming-boxes, even those with a frame of comb in them, lies in this—that you are not dependent on the will of the bees whether they enter or not. Bees are freaky little creatures. You poke a box among them as the cluster is forming; and if they do not take a notion to enter, you must secure them in some other way. Or if you are too persistent in obtruding your box upon them they abscond, and so get rid of the annoyance. Or, again, you coax them into your box, and then lose them at the entrance of the hive.

I have tried the method—I do not know whose it is, but I first saw it practiced at Mr. Heddon's—of shaking the cluster into a light box or large tin pan, and instantly covering the bees with a muslin or linen cloth. It is better than some of the modes practiced, but not wholly satisfactory to me. You can not always get a good fair shake; and if you do, perhaps fail in getting the cover on properly, or after it is on it is brushed aside while you are climbing down from the tree; and, lastly, perhaps there is a miss in getting the queen out of the box or pan into the hive.

It will, perhaps, be said that my device will answer very well where the cluster hangs in a nice convenient shape as in the pictures; but when it

gets among small limbs of trees, and in awkward places, it will not work. To which I reply, that apple-trees with properly trimmed open heads, and Norway spruces with symmetrical branches, offer



FIG. 3. MANNER OF CONFINING THE BEES.

no chance for the tangling-up of swarms we sometimes witness. There will be here and there an exceptional case; but an apiary having a right environment, such as described at the outset of this article, will give off swarms that will cluster in a ship-shape form, nearly every time. If we surround our bees with high trees, or thickety trees, or plant the apiary where there are no trees at all, we must, of course, take the consequences. Swarms like, above all things, to cluster on trees; and if we provide such as are convenient for ourselves as well as them, they will use them, so reducing our trouble and risk of loss to the minimum point.

WM. F. CLARKE.

Guelph, Ont., Can., July 26, 1887.

Many thanks, old friend, for having given so much prominence to our swarm-catcher, with your improvements. Perhaps I should remark, that the implement, as we represent it in the A B C book, was invented and used by one of our girls who assisted in the apiary, and who afterward for several years managed quite an apiary herself. I believe she used the implement very much as you suggest. The rim around the bag was made of wire. This wire was so springy that, when held upright, it would tip over by the weight of the bag in pretty nearly a horizontal position. She always insisted that it was much more convenient than our swarming-box. I believe a good many, however, rather prefer to *lead* bees than to *drive* them; and my experience with bees shut up in a bag has not been satisfactory. They always behave as if there were a good deal of protest about the whole proceeding; whereas in a swarming-box, or a half-bushel basket, which I like about as well, they behave as though they were acting according to their own pleasure, and I rather prefer to manage bees in that way when it can be done. I have often, however, had second and third swarms when I fairly ached to get them in-

side of a bag, or in some other place where I could make them stay and behave according to *my* notions instead of theirs.—I want to congratulate you, friend C., on the picture you sketched, of a fine old gentleman—farmer or bee-keeper. Just to look at his placid face and deliberate (I was going to say movements) position, is an encouragement. When you feel inclined, please give us some more from real life, along with your writings, and we extend the same invitation to the rest of our readers.

MRS. CHADDOCK'S LETTER.

HER EXPERIENCE AT A CAMP-MEETING DURING DRY WEATHER.

BEES have done nothing this summer—have not gathered enough honey to winter on—will have to be fed, or starve to death. We have not had a good old-fashioned soaking rain for 14 months. We had no winter rains—only snows. The spring rains that we usually have, that stop plowing for days, did not come this spring. Not a single hour was lost on account of wet weather. We had a middling sort of rain on the 3d of July, and that is the last. Every thing of the grass kind is dried up. Our pasture fields, blue-grass sod, and timothy and clover, are as dry as the highway, and almost as dusty. Yesterday, as we rode along past the woods pasture, Jessie said, "That pasture is rather low, isn't it?" We all laughed—"rather low" was pretty good where not a spear of grass could be seen, and a great cloud of dust rising up whenever the sheep walked about. We pump our stock-well dry every day, and then water the cows and calves at the house-well. Our pastures dried up the second week in June, and we have been feeding dry hay and green corn ever since. We had just six weeks of green pasture this year—a pretty short summer. We live away from the public highway, and all the dust we get at home is of our own raising; but as it is, we get enough. We can hardly get the washing dried without having it all covered with dust, and it comes into the house, and settles on every thing. They say dust is a good disinfectant. I feel sure that we have had enough dust sprinkled over us, sifted down our backs, and breathed into our lungs, to disinfect us as long as we live.

Last Sunday we went to camp-meeting. Everybody was there. They had a big tank of water, and a great crowd stood around it with tins and dippers and buckets, waiting for a chance. I went up with my two daughters to get a drink. We did not have a tin, and we stood there a good while. Finally a brisk young man, in a striped seer-sucker, said, "Let me have your tin, Henry; here are two ladies who want a drink." Jessie snickered (she is fifteen), and Minnie pressed my arm. The brisk young man held the tin at the faucet till it was full, and then passed it *over my head to the two ladies*. Jessie took it, and, extending it to me, said, as sweet as peaches, "Won't you have a drink, mamma?" And I took it and drank. That was early in the day, while people were yet calm and polite to each other. Before long, when the heat grew intense, they pushed each other away by main force, and jammed and *almost* quarreled over whose cup should be filled first. Then the whole thing ran

dry, and there was not a drop for anybody, and the strong were no stronger than the weak.

There is a mineral well on the camp-grounds, but the water is sweetish and saltish, and sourish and bitterish, and very few like the taste of it; but then, everybody drank it, and it was fun to see the wry faces and the spitting and sputtering.

I do not see how bee-keepers can afford to go to conventions. I can not. I paid out \$35.00 for hives and foundation, and we have not a pound of honey to eat. Won't some brother be kind enough to pass around the hat? MAHALA B. CHADDOCK.

Vermont, Ill.

Why, Mrs. C., do you really mean to say you had such a state of affairs at a *camp-meeting*? Had it been at a circus, or even a political meeting, I should not have been very much surprised; or had it been a temperance meeting, it would not have been so very strange, where the people wanted to show their zeal for cold water. You did not tell us any thing about the sermon; but the text surely could not have been any thing about "in honor preferring one another." We hope the preacher was not too severe on the three or four millions of Israelites who, when they came into the "great and terrible wilderness, wherein were fiery serpents, and scorpions, and drought, where there was no water," murmured against Moses; for if the Israelites simply murmured, surely the people of Illinois should not strive. It seems to me that water-tank must have afforded an excellent opportunity for people to show their Christian spirit. And now, my good friend, have you not omitted to mention that a great many *did* show a spirit of self-sacrifice, and stood back and went away thirsty, because they preferred to suffer rather than to see others suffer? When Jesus stood at the well, waiting for water, and, if I am correct, not getting any after all, he spoke these wonderful words: "Whosoever drinketh of the water that I shall give him, shall never thirst." I do not know that I have ever been where there was not water enough for the crowd to drink; and if I should ever get in such a gathering, it seems to me I should enjoy the opportunity of furnishing water myself for all who might care for it. A few days ago it was mentioned in my hearing, that they were selling lemonade and pies at their camp-meetings, and this, too, on Sunday. I remonstrated. My wife took me to task, and asked if I were not uncharitable, suggesting that people who were from a distance must have refreshment. I replied that, under such circumstances, they should have crackers to eat and water to drink; and if anybody was not willing to pay for the crackers I should enjoy footing the bill myself. I am very glad to hear you had such a gathering at that camp-meeting that the supply of water provided was not adequate; but I should be still more glad to hear that that great gathering drank of the water of life as well as of the water contained in the tank mentioned. Had they striven as eagerly for the water of life, "flowing, freely flowing," as they did for the natural substance, it would have been a beautiful comment on Christ's words, "The kingdom of

heaven suffereth violence, and the violent take it by force."

COUNTING CHICKENS BEFORE THEY ARE HATCHED.

DOOLITTLE'S SWARMING THEORY NOT HOLDING TRUE.

I NEVER came as nigh getting a big crop of honey in all my life as I did this season, and yet miss it entirely. I commenced the season with 55 colonies, some strong and some weak. They were like the fellow's fence-rails. He said some of them were too long and some too short, but they would make a good average. Well, by the first of May the most of them had built up to be quite strong and ready for swarming or storing bushels of surplus honey, or any thing else they might take a fancy to. I, being in high spirits, had all my oars with the right sides up to catch the honey shower whenever it should come; and even my grocer, who has sold honey for me for several years, had promised to sell for me this year for nothing, because he said it was an advantage to his business. You have heard the proverb, "Never count your chickens before they are hatched." Well, I couldn't count mine; they were too numerous—in my imagination; but I can count 'em easily enough now. From 55 colonies, spring count, I have 7 good swarms, and had 55 one-pound sections of empty comb filled with nice honey, and the bees are all in good condition now and ready for the fall flow of honey, if it comes; but that "if" is in the way, and I can't move it; for we never do get any surplus here in the fall after a very dry summer. Now, do not put me in Blasted Hopes, for I am not one of the blasted kind. You had me in there once, and I didn't stay there three months. You can't keep a fellow in there who has any get-up about him, and it's no use trying. Suppose you could, there's enough of us here in this township in about the same fix to fill up the whole department. According to the assessor's report there are or were in this township, before swarming was over, 550 colonies of bees, divided perhaps among one hundred owners, and I have not heard quite as good a report from any of them as I make myself.

Mr. Doolittle's theory of swarming does not agree with my experience and observation; in fact, his rule, page 434, is the exception, and his exception is the rule all through the season from first to last with me, be the apiary large or small, and be the bees black or white, yellow or brown. Here are the facts of this season's observations: Out of 7 swarms in an apiary of 55 (all natural swarms), the first came out on the 10th of May; and if they had any queen-cells at all there was nothing but eggs in them, because it was fully sixteen days from the time they swarmed till there was a queen hatched in the old hive. The next five had queen-cells more or less advanced, but none capped till the 7th. The last one came out on the 15th day of June, and left capped queen-cells almost ready to hatch. From these facts I infer that the rule laid down by Mr. D. for the benefit of beginners is more likely to mislead than to benefit them, and these facts from my experience of the past season are not exceptional, but rather corroborative, of my last sixteen years of modern apiculture. JACOB COPELAND.

Allendale, Ills., Aug. 9, 1887.

ANOTHER USE FOR THE CHAPMAN HONEY-PLANT.

A NEW OIL EXTRACTED FROM ITS SEED.

WE take the following from the *Buffalo Express*, of Aug. 8, referring to the Chapman plant as an oil-producer as well as a honey-producer:

Some years ago a Mr. Chapman, of Marcellus, N. Y., while spending a winter in Florida, gathered a large quantity of seeds of various kinds; and on his return to the North in the spring, he planted them in his garden. Among the plants which sprang therefrom he noticed one which had never been brought to his attention in the tropics. It grew up a strong thrifty plant with large prickly leaves, somewhat like those of a thistle, but the first year failed to blossom. The following summer, however, it bore about 30 compact ball-like flowers, from one to two inches in diameter, which emitted a fragrant odor and proved an irresistible attraction to all the bees in the neighborhood. Indeed, so great was the excitement of the honey-gatherers over the floral stranger that Mr. Chapman one day kept account of the number of visits paid a single blossom from sunrise to sundown, and the visitors' register showed 2170 calls. Because of this peculiarity the plant was christened the "honey-bee plant," and by this name, or by the commercial title of "Chapman's honey-bee plant," it has become widely known among the bee-keepers of the country. It has been ascertained that the plant is a native of Southern France, where it is treated as a weed.

Believing that the seeds of the plant would be in active demand as soon as its qualities became known, Mr. Chapman saved the seeds from the original and planted them the following season. This was repeated again and again until he now has ten acres under cultivation. The plant flourishes in a clay soil, which will raise nothing else save thistles, and is so hardy that a failure of the crop need never be feared. The seeds are now in active demand among bee-keepers at a dollar a pound.

Some time ago the seeds of the honey-bee plant, which resemble oats in form, were brought to the attention of Mr. F. S. Pease, the well-known oil-dealer of this city, who is the authority for the statement herein made. He perceived that they were rich in vegetable oil. Learning that the plants grew with very little attention, and produced a large quantity of seed which could be easily beaten out from the balls, the idea occurred to him that possibly the plant might some day hold a prominent commercial position as an oil-producer, thus serving a double purpose during the period of its existence. Acting upon this thought, Mr. Pease two years ago procured a quantity of seed and extracted therefrom the oil for experimental purposes. It was found to be equal to the best linseed oil for all purposes, but in its qualities more closely akin to the poppy-seed oil. It does not solidify, and shows no disposition to acidulate. A two-years' test has demonstrated that it has a commercial value equal to linseed oil.

This raises the question as to whether it can be manufactured profitably. The linseed-oil cake which comes from the compress after the oil has been extracted is a valuable commercial product. The residuum of the honey-plant seed possesses qualities so closely allied to quinine that the taste and after-effects are apparently almost identical with those of the costly drug.

To determine the full value of his discovery Mr. Pease will go to New York this week, accompanied by Mrs. Pease, to attend the meeting of the American Association for the Advancement of Science. Mrs. Pease will read a paper in the botanical section upon the honey-bee plant, while the oil itself, and the bitter residuum left after the extraction, will be brought to the attention of the chemical section.

Should the honey-bee plant prove worth cultivation for its honey, oil, and quinine substitute, some of the farms in Erie County which are now scarcely worth the taxes paid for the privilege of being a real-estate owner, may experience a rise in value such as comes with the discovery of mineral oil beneath the most barren soil.

The question now arises, Can this seed be raised cheaply enough to compete with flax

seed? From what I know of the two plants, I should say it can not. I may, however, be mistaken. The Chapman honey-plant also requires two seasons, while flax requires only a small part of one season. If its bitter quality can compete with quinine, and answer the same purpose, there may be a great opening in this line; that is, if quinine is to be used to the extent it has been. The yield of honey from our plants is about the same this year as last. The blossoms came fully two weeks earlier; in fact, it began to blossom before the basswood yield was over. Friend Chapman had a sample of the oil at the Indianapolis Convention, and he has also a home-made machine for extracting the oil. A small quantity of seed gives a comparatively large quantity of oil.

REPORT FROM E. FRANCE & SON.

EXTRACTING TOO CLOSELY IN THE FALL.

LAST year we got 42,000 pounds of honey; this year we got 5000 pounds, with a fair prospect of having to feed it all back, or its equal in something else, to winter the bees. We will feed sugar if we can not get honey. All we are trying to do now is to keep the bees alive until another year.

The following is the number of colonies in the fall of 1886 and spring of 1887:

Water's yard, fall,.....	89;	spring of 1887, 68; loss.....	21
South yard, fall,.....	69;	" " 58; loss.....	11
Adkinson's yard, fall,.....	94;	" " 45; loss.....	49
Cravin's yard, fall,.....	113;	" " 104; loss.....	9
Burney's yard, fall,.....	76;	" " 74; loss.....	2
Home yard, fall,.....	66;	" " 61; loss.....	5
Total,.....	507	410	97

The spring of 1887 opened out well, and we expected to get a good crop of honey. We had every thing ready. We moved bees from the Cravin yard to the south yard, and to the Adkinson yard, to make them more equal in numbers. We moved the whole of the Burney yard two miles on to Mr. Gunlow's place.

We had kept bees at Burney's 20 years. Then why did we move them? The timber had been cut away since I first located the yard there, leaving it too windy. But we lost only two out of 76—the best showing of any of the 6 yards. I will tell how that happened, further on. Another reason for moving them was to get more room. We never had over 50 colonies, spring count, and at Burney's we wanted room to keep 80. We can carry help to work 80 colonies in a day, and we want to work all our yards up to that point. By the above report it will be seen there is a big difference in the winter losses, Burney's being the best and Adkinson's the worst.

I think I know just where the trouble lies. We went over all of our bees last year in just a week; that is, all were extracted every week—just a week from one extracting to the next—for each yard. We commenced to extract first, from the Waters yard; on the next day from the south yard; on the third day from Adkinson's; on the fourth, from Cravin; then from Burney, and last at home.

HONEY-DEW A BAD WINTER FOOD.

We kept the same rotation through the extracting season. We had here, just at the close of the basswood run, a great flow of honey-dew—very dark, thick, sticky stuff. When the bees failed to obtain

any thing from the basswood they commenced on the honey-dew and filled all the empty room they had with that miserable truck. Those that got the most fared the worst. When we commenced to extract the last time around, we thought the basswood was good for a week yet, during which time the bees could fill their hives. To make sure, we left in each hive two full combs of good basswood honey in the Waters yard, for it is two miles from basswood. They soon left the basswood for honey-dew. By the 29th of January the bees in that yard had a fly, and showed that they had the dysentery badly. But from the fact that their location was in a warm valley (which gave them a chance for a cleansing flight quite often) they would have all died.

But, to return. The next day we extracted the south yard. We left in about one-fourth of their honey. They were well located in a warm valley, with basswood all around them. But in that place the basswood was earlier, and, as a consequence, ceased yielding nectar early. But the bees which were filled up with honey-dew had dysentery badly, and ran down to very weak colonies, 11 of them having died. The Adkinson yard was worked in the morning of the same day as the south yard, but we took out about all the honey. The celebration for the 4th of July was on the 3d, as the 4th came on Sunday. We were making three days' work in two days, so we traveled to get to the Adkinson yard before daylight in the morning, and could not see how far along the basswood was, and hence we made a mistake. We took out too much of their good honey, and left them to fill up with honey-dew, which they did, and over half of the bees in that yard died in consequence. Right here we quit extracting, and see the results. Out of the Cravin yard of 113 colonies in the fall, we lost nine, four of them being queenless. Out of the Burney yard of 76 colonies we lost only two, and one of those was queenless. The home yard, Cravin yard, and Burney yard all came through healthy and strong. There was not a single case of dysentery in any of the three yards. They all three had *plenty of good basswood honey to winter on*. The other three yards had but little good honey, and wintered mostly on honey-dew. Some kinds of honey-dew honey may be good for bees to winter on, but I am satisfied that what we had here won't do. It was gathered from the oak. Bees wintered about here in cellars were no better off—nearly all died. One man had 37, and lost 30. Another had 50 and lost all; still another had 30 or 40 in the cellar. He lost all. He was extracting clean a week after we quit. They filled up with honey-dew and died. E. FRANCE.

Platteville, Wis., Aug. 11, 1887.

Friend F., you give us a very valuable set of facts indeed in regard to this matter of extracting too closely in the fall. With the number of apiaries you have to work, you have an opportunity of getting results that are almost without a possibility of mistake, and correct in the deductions. I do not think, however, it was entirely the fault of the honey-dew. Many years ago we extracted very closely, just as you mention, and the bees died badly, although we had no honey-dew at all. The next season we worked for increase entirely, to build up our shattered fortunes, or, rather, our dwindled colonies. Every pound of honey gathered was

capped over and ripened in the hives, and saved for winter stores; and although we increased from 11 to 48, not a colony was lost. We have since had opportunities of testing the matter, and we have always found much the best results in wintering where we stopped using the extractor a week or two before the honey-flow entirely ceased.

REMOVING SECTIONS FROM THE T SUPERS.

IS THE SLATTED HONEY-BOARD A NECESSARY IMPLEMENT IN THE PRODUCTION OF COMB HONEY?

THE late numbers of GLEANINGS have had several articles on removing sections from the T supers, by Dr. Miller and others. We have used them quite extensively in our apiaries for the past four years, and I should like to have some of our brother bee-keepers tell me what the object is in removing them all at once. We always clean our sections as we remove them, one at a time, and then they go right into the shipping-case. If we do not have our shipping-case ready when the crates come from the hives they are packed up on each other, with a sheet of paper between them to catch drip if any; but we hardly ever have any.

In GLEANINGS of July 15th, Ernest says, to use it without the honey-board would be simply intolerable. After using them both ways, we much prefer to have no honey-board under our sections; for by experimenting we are convinced that much more honey can be obtained, especially in a poor season like the past, by the non-use of honey-boards of all kinds. I could not but notice how much sooner the bees commenced in the sections, without any honey-boards to crawl through. If the bee-space between the brood-frames and sections is right, and the bees are not crowded for room, they will not build any comb to speak of between sections and frames; and when we wish to examine brood-frames below we do not have the trouble to pry off a honey-board in order to do so. We have never practiced contracting to any extent, as we do not see any advantages obtained in so doing; for by using eight-frame hives, 12 inches inside measure, we can secure all the honey we ought to take from the bees, and then we do not have to be to the trouble of feeding for winter, and by so doing have so much trouble by bees robbing each other. We rarely ever have a case of robbing, as we do no feeding, unless a few colonies need a little to help them in the spring.

The past season has been a queer one. We never saw half as much white clover; but, as a great many have reported, it did not secrete any honey, owing, we think, to cool nights and too much rain. If it were not for blue thistle coming in bloom about June 15th our crop of honey would have been very small. As it is we have secured half a crop of nice comb honey, and hope to realize more for it than a full crop last year.

H. W. BASS.

Front Royal, Va., Aug. 15, 1887.

It seems to me, friend B., there is considerable advantage in removing the sections all at once, or *en masse*, as Dr. Miller terms it. By removing all the sections at one

time, and cleaning them at another, we secure some of the advantages of the division of labor, so called. If you take the sections out one by one from the T super, you will have to fuss a while before you can get out the first one; and I feel quite sure that, by Dr. Miller's plan, we can remove *all* the sections at one operation while you are taking out three or four by your plan. We tried the doctor's plan of emptying the T super, as he describes it on page 249, and were very much pleased with it.—On page 556 I said, that to dispense with our slatted honey-board would be simply intolerable, and I think so yet. I grant there is a possibility of getting perhaps a trifle more honey; and it is possible, also, that the bees would enter the sections a little sooner; but how about the burr-combs which the bees would surely attach to the exposed bottoms of the sections? When you come to tier up, placing a super of empty sections under the one already partly filled with honey, what do you do with the burr-combs that are attached to the bottom of the sections in the super? Although I knew what would be the probable result, I tried it this summer, just to see how it would seem, and I vowed I would never do it again. In pulling up the super, the lower brood-frames stuck and dropped down, as one of the boys proceeded to slowly tear away the super from off the brood-nest. The bottoms of the sections were covered with little chunks of honey, which dripped and drizzled as he handled it. Now, suppose we had put an empty super in its place, and placed this dauby super on top of the clean one, about the time we had secured our crop of honey we should have had our two supers stuck and gummed together. Why, it seems to me that, to run say 100 colonies in this way, without slatted honey-boards, would be "*intolerable*" indeed. You say that you have used the T supers quite extensively for the past four years. Did you not, when you dispensed with the use of slatted honey-boards, use a super something like our combined crate—that is, one having slats in the bottom, upon which the sections are to rest? If you did, then the task of securing comb honey may not have been so intolerable after all. Still, even then I should prefer the slatted honey-board. Is there any one else who can secure satisfactory results with the T super or Heddon case, without the slatted honey-board? Perhaps Dr. Miller or Mr. Heddon or W. Z. H. will say what they think about it.—With the eight-frame hive, contracting is not so essential as with the ten-frame hive. Still, I think that taking out two frames and replacing them with dummies must be decidedly an advantage. If I am correct, it is the practice of some of those who use contraction to fill out the brood-nest to its full capacity, just as the honey-harvest has nearly come to an end, so that extra brood-frames may be filled with honey when the inflow has entirely ceased.

In addition to what Ernest has said above, I would remark that, by the use of the slatted honey-board, a case of sections comes off at any time with perfect ease—so much so, that at one of our Michigan conventions a one-armed friend said he could pick up

any case from any hive in his apiary, filled or not filled, with his single hand, and could do it without any difficulty whatever. If you omit the slatted honey-board this would be absolutely impossible.

APIFUGE AND ITS DERIVATION. AGAIN.

SOMETHING FROM OUR FOREIGN FRIEND, MR. GRIMSHAW, THE ORIGINATOR OF IT.

DEAR SIR:—I observe in July GLEANINGS that you make some remarks on my discovery, apifuge; and as they are somewhat misleading (through inadvertence, I doubt not), perhaps you, with true international courtesy, will permit me to direct you and your readers into the right path.

The word "apifuge" is derived from *apis* (a bee) and *fugeo* (to avoid, retreat from, leave alone, etc.), not from *fugo*, to scare or put to flight. This I well explained in the *British Bee Journal*. It therefore, is not, as you say, a bee-scarer, for its effects on them are of quite a passive and pacific character. If bees liked it they would cover the hands, etc., and be a nuisance; on the other hand, if they disliked it they would sting. As it is, "they who come to scoff remain to pray," for bees dart at the hand sometimes, intending to sting; but in an indescribably short time they sample, so to speak, the surface before inserting the dart; and, finding this strange substance on the skin, submit to its influence and fly away.

I must say, that I was in a measure disappointed at your testimony being so mildly favorable, considering your impartiality, and although you yourself did not get stung whilst manipulating a lot having Cyprian blood in them. I judged you selected a Cypriote lot in order to fairly test "apifuge," and, finding it answer, I repeat I felt chagrined that you did not tell us of its success. I should like you to try it again on the very worst demons you have, and judge whether or not bees will sting the skin on which it is rubbed, so long as the perfume of apifuge remains. It is no small recommendation, that it is not only a preventive against, but a cure for, stings.

RATT. GRIMSHAW.

Crag Hill, England, Aug. 1887.

Most certainly, friend G., we are quite willing to be directed in the right path. If our readers will permit, I will take a little space here to discuss some Latin derivations. The formation of the word "apifuge" is such that it can be derived from *apis* and *fugo* as well as from *apis* and *fugio*. (The latter you write *fugeo*; do you not mean *fugio*?) It seems to me that *fugo* would be a more natural verb from which to derive the suffix. For instance, "vermifuge," a substance for expelling or driving out worms, takes its derivation, according to Webster, from *vermis*, a worm, and *fugare*, to drive away, to route, to scare, to put to flight. If we translate "apifuge" literally, as derived from *apis* and *fugio*, our English equivalent would be "bee-avoider;" that is, the liquid itself avoids bees. In other words, are you not putting the cart before the horse? However, I do not know that it makes any practical difference one way or the other; but I should prefer to have the suffix derived from *fugo*, as is the suffix in the case of vermi-

fuge. I am sorry if what I said was so mildly favorable to apifuge as to detract from its real merits. As I stated on page 517, I can not help thinking yet that the behavior and the control of the nerves has more to do with the prevention of stings on the hands of the apiarist than any liquid that can be compounded. Again, I can hardly think that any preparation smeared over the hands or on the face would prevent any bee, that was fully intent on stinging, from accomplishing his purpose. Many times have I seen a Cyprian mark out his spot of attack at long range, and, without the least shadow of preliminary as to whether this or that spot was softer or more desirable, he would strike tail foremost. From my experience with the liquid I hardly think the "Cyp" would have changed his mind. Let us you may still think I am prejudiced, I take the following from the pen of one of your own countrymen, as found on page 348 for Aug. 11, of the *British Bee Journal*:

"In answer to 'E. W. P.' (1164), you think that apifuge would have more effect than smoke or carbolic fumes. Well, I for one should be inclined to doubt it. Two years ago I got some bees of a neighbor, who said they were so wicked he could not manage them. I found smoke of little use; they retreated before volumes of it, but always returned to the charge whenever the smoker was laid down. Then carbolic-acid fumes were tried, and had some effect, but were not quite satisfactory, because these bees would, under the influence of the fumes, allow the hive to be opened and some of the frames to be lifted quietly, then all of a sudden they would attack in a cloud. I still kept this breed of bees, because they were such good workers, though almost unmanageable, and dangerous to passers-by on the road near.

When apifuge came before the public, I hastened to get a bottle, and, after donning a veil, rubbed my hands and wrists with this invisible soap, and proceeded boldly to the "wicked" hive. Gently I turned back the quilt, spread out my hands to bless them into peace and quietness, but I think there was some mistake amongst those bees, because they never stayed to feel the pleasant scent of apifuge. Straight they shot at face, hands, and body; and sting! did they not? My hands were about covered with their lances, and they went at my clothes in perfect madness. I didn't run, I am too well hardened for that, but wince I did, till I got a knife and cleared the back of my hands from poison-bags. Not to be beaten, I again put some apifuge on my hands, and with no better results, so closed that hive as soon as possible. That apifuge is useful in some cases, I know; but, after repeated trials, I think that it is utterly useless with these particular bees. I disturb these bees as little as possible now, and when I do, always using a cloth saturated with carbolic acid. I may say that these bees are crossbreds, black, with just a touch of Ligurian, the queen being very black.

GEORGE D. CLARK.

Kirklandhill, Dunbar, Eng., Aug. 1, 1887.

AN A B C SCHOLAR'S EXPERIENCE.

THE SUPERIORITY OF ITALIANS DURING DROUGHT.

I COMMENCED bee-keeping a year ago, at which time I bought 18 full stocks, ten of which were Italian. Again last February I purchased fifteen colonies of blacks. I allowed seven of the Italian colonies to swarm this spring. I now have forty colonies in all. On the 8th of April two swarms came out, and I hived them successfully; and after a day or two I discovered that neither had queens. Can you account for this? I gave them queens, and they did well in building up strong. I am now Italianizing all my blacks, giving them first-class queens.

This is an "off" year in this county for honey. We usually commence extracting about the first week in May, and extract every eight days until the 10th of June. This year there has been no extracting in the best localities. During the second week in May, Italians and blacks filled up the brood-chamber and then stopped short off. Italians held their own and increased a little, while the blacks have lost all they did have. They have plenty of bees, as I have not allowed any of them to swarm. My Italians last fall gathered considerable honey, while my blacks had to be fed. I am done with black bees. It was cold here all during fruit-bloom last spring, and we had a killing frost that resulted disastrously to peaches; then it was dry from the first of March to the middle of May. This, I think, is the cause of failure in the honey crop.

I am the only man in our county who has Italians. If it had been a good honey season I would have increased to about eighty colonies. My apiary is situated in the town of Madison, and it is quite a curiosity to some people here who never saw an apiary. My hives are all painted white, and arranged just the same as shown in the cut on front of your price list and catalogue. A young lady was out riding, not long since, in my neighborhood, and spied my apiary afar off. She suddenly exclaimed, "Oh! I did not know there was a cemetery in this part of town." She is a stranger here.

There is no trouble in wintering here if the colonies are strong and have plenty of stores. We just leave them on their summer stands, and they go safely through the cold. R. H. CAMPBELL.

Madison, Ga., May 28, 1887.

I believe it is a common thing, friend C., for strangers to call a well-kept apiary a "cemetery." This is oftener the case where Simplicity hives are used without grapevines. Since our grapevines have grown up, people, in passing through our town on the cars, are not nearly so apt to call our place a cemetery.

A LETTER FROM AUSTRALIA.

HONEY AS A FRUIT-PRESERVER.

I ENJOY GLEANINGS thoroughly, particularly now that you have added the articles on gardening; for, with the exception of work among the bees, nothing makes me happier than poking and rooting about in the garden. So GLEANINGS gives me double pleasure now. I must also thank you for your A B C. It has been a great help to us; but, plain as it is, I don't know that we should manage so well but for the advice and practical hints we get from our good friend Mr. Garrett, who has done more for bee-keeping and bee-keepers than any one else in the colony. Mr. Parker, of Glenbrooke, and Mr. Hudson, of Bathurst, and others like ourselves, have secured very great assistance from him; and among other good things he introduced us to Mr. Root and the Home of the Honey-Bees. Inspired by what you said about growing vines, I got eight young vines in the middle of summer—quite the wrong time to do it, and by patience and great care I have managed to rear six fine strong plants; the other two look delicate, but I have hopes of even them; at any rate, I won't give them up as long as there is a green twig left. Our bees have not done so well

this year as we hoped they would. It has been a very wet season, but we must not grumble, as it has been preceded by many years of drought; but, unfortunately, the bees, particularly the Italians, would insist upon throwing out their brood after it had been raining a couple of days; and this, with plenty of stores in the hive. I had actually to feed them with honey to coax them to leave their brood alone; and even this did not always have the desired effect.

We have made some foundation with the comb-mill, and we think it is very nice; in fact, we often stop work to admire it, it does look so very pretty, and we find the bees like the fresh home-made wax much better than what we got from New Zealand, for they will work eagerly on the one when they won't touch the other.

Among the many ways of utilizing honey, written about in GLEANINGS, I have not noticed that any one advocates its use for preserving fruit. I know oranges, both whole and as marmalade, are simply delicious, preserved in honey, and so are mangoes. Now, why should not Mrs. Chaddock or Mrs. Harrison try it with some of your beautiful fruits, or dear Mrs. Jennie Culp. I am sure she could if she tried. I mean to do it, and will tell you how I succeed. I am determined not to fail. Who knows but that I may send you some to taste?

SOPHIE A. BRADLEY.

Campbelltown, Victoria, Aus., Feb. 22, 1887.

MORE ABOUT BLISTER-BEETLES.

A BLISTER-BEETLE THAT COMES AS A FRIEND INSTEAD OF AN ENEMY.

I WAS much interested in Prof. Cook's account of the blister-beetle larvæ on bees; and thinking that perhaps some of the readers of GLEANINGS might come to the conclusion that the insects of this family are all injurious, I send a few notes on the habits of some species closely related to the one of which Prof. Cook writes.

During the summer of 1885 a large part of Central Illinois suffered from an outbreak of two or three species of our common grasshoppers, many farmers having their crops almost wholly destroyed. As many people throughout the infested region feared that the insects would be present the next season following in overwhelming numbers, I was instructed by Prof. S. A. Forbes, State Entomologist, to investigate the condition of the grasshopper eggs late in fall and early in the spring, in order that we might know what probability there was of serious damage. The grasshopper eggs are small, yellowish, cylindrical objects, about a third of an inch long, and are laid in masses, or "pods," containing fifty to one hundred eggs each. These pods may readily be found in sod land, about an inch below the surface; and by examining a sufficient number of them at any one time a very fair idea of the percentage of embryo grasshoppers then alive can be obtained. In the investigations mentioned I found a large proportion of the egg-pods to contain a peculiar whitish grub which was leisurely eating the eggs about him, having generally already destroyed from one-half to three-fourths of the eggs in the pod. These were the larvæ of the blister-beetles, which had been very common the summer preceding, and had entailed so large a progeny upon the land that, aided by a common red

mite and two or three other insects, they so entirely checked the grasshopper outbreak that the pests were very scarce the succeeding season.

These blister-beetles are often known as the "old-fashioned potato-bugs," and have a life-history similar to that described by Prof. Cook for *Mela*, except that they attack grasshopper eggs instead of bees. Their very curious life-history was first worked out by Dr. C. V. Riley.

These insects are very abundant throughout the West the present season, and are doing considerable mischief (perhaps as compensation for the good they did when young) by eating potato and tomato vines, cabbages, beets, corn, and, in fact, almost any green thing they can find. They can be driven out of small fields, much like a flock of chickens—generally a better method than poisoning them, because we can not afford to dispense with the services of their young as grasshopper-destroyers.

C. M. WEED.

State Laboratory of Natural History, Champaign, Ill.

ENTRANCE - SCREENS TO PREVENT ROBBERING.

FRIEND HAYHURST GIVES US A VERY VALUABLE SUGGESTION.

FRIEND ERNEST:—When reading "A Caution to Beginners," on p. 598, the thought occurred to me, "I wonder if I can not give E. a little lift in that matter." Suppose you try my way of circumventing the thieves. Out of some quarter-inch stuff, two inches wide, make five or six little frames, six inches in width, and as long as your hives are wide. Tack pieces of wire cloth on one side of these, thus making screens to be adjusted over the entrances of your hives. This can be done quickly by "toeing" a wire nail through each end into the front of the hive. When you remove the tent from a hive just operated upon, allow time for most of the flyers to get into the hive, then shut out the robbers with one of these entrance-screens, which may be left in place until you have gone through five or six more hives, by which time the first one will have matters straightened up and be ready for battle if necessary. The screens should be made at least as large as mentioned, so as to allow some of the bees to cluster outside of the entrance if they wish to; and in very hot weather, with the sun shining directly on the hives, it is not safe to leave the screens on very long, else the bees, finding themselves shut in, may start to "running" and soon smother.

I have used these screens for a number of years, and they have enabled me, on many occasions, to put up from twenty to thirty or more 1-lb. packages at a time, regardless of the weather or time of day, and at seasons when it would be sure to start robbing if I should attempt to put up one package in the usual way.

E. M. HAYHURST.

Kansas City, Mo., Aug. 12, 1887.

As I have already had something similar, I feel very sure your plan will work. I infer from your description that you are using a hive with a Langstroth portico. It is a pretty difficult matter to close the entrance of a Simplicity hive with any kind of wire screen. However, I will try to put your plan, in some form, into execution, and give it a thorough trial.

THE BLESSINGS OF A SHORT CROP OF HONEY.

ABSCONDING SHORTLY AFTER SHIPMENT.

YOUR old reliable Mr. W. Z. Hutchinson, in your July 15th No., has been aiding you in putting backbone into some of us. We were getting ourselves into position to do some small blowing on humbuggery of bee-keeping as an aid to family support; but his suggestion, that a failure in crop may not be fully a failure in purse, and that the little honey made may bring as much as a larger yield would, braces up our sanguine temperament, and we have no bees for sale yet. Another year may serve us better; if not, you may have opportunity to advertise some cheap pure Italians.

About one year ago, though late in the season, we determined to purchase 20 swarms of bees, and do as others had—make money, or an attempt at it. We soon had ordered from Charles D. Duvall, Spencerville, Md., 10 swarms by express, which came to hand promptly and in good condition, excepting 2 inside cages were overheated, and two-thirds perished. They arrived about noon; and as soon as practical all were transferred into good eight-frame hives; and before night, work was going on as though they were still among their native hills. At 11 next day, one colony became dissatisfied, and, without giving a reason or warning, abruptly left the hive; but we soon took them from a pear-tree near, and, after putting them back, seeing discontent, we closed the hive till near night, then gave them their freedom. Next morning, about 7, they dropped from the hive, and within one minute were hastening toward the east, in spite of much water thrown among them. Some few were shut up in the hive, but the swarm was lost. A few hours later (Sunday morning, of course) two swarms more came out, mixed up, and alighted together on the heavy fork of a pear-tree. Though not quite tyros in the business it was not pleasant to get these bees into two hives again, neither was it profitable; for by 10 next day they left by the same route of their fellows the day before. In short, five of the ten swarms left, all taking the same easterly direction. If going by instinct to their old location, they should have gone northwest.

About this time, Aug. 20, our second importation arrived from South Carolina, by express. They were transferred without trouble, and appeared to enter right into the spirit of their calling; and though late, many of them laid by stores sufficient for the winter. Others, weaker and less active, had to be fed to carry them through. What much surprised us was, that in April, after the bees had been working at least a month, we found one swarm dead and another nearly so—starved to death. They had apparently been so engaged with their brood development as to overlook their supply of food, and a few cold non-working days ruined them. And now the outcome: The thirteen colonies fully wintered have given us but four new swarms, and they were mostly late; the last, July 27th. Most of the brood frames are well filled with winter stores, but the honey-boxes have received but little attention, a few being nearly filled, but none yet completely capped.

During our long heated season the bees have hung out, fanning themselves, apparently trying to keep cool, while care for the future did not seem to

enter into their calculations. For fully a month their stores have not increased, and some have been living on their earlier gatherings rather than expose themselves to "sunstroke." I should think the richest honey should be gathered in hot weather, but the bees ought to know. J. C. FRISBEE.

Suffolk, Va., Aug. 15, 1887.

Friend F., it is very strange indeed that so many of your colonies swarmed out and went off in the same direction. I know it is a fact that bees, after having been shipped or moved, sometimes take a notion to desert their hives; but I don't know that I ever heard of so many following suit. You probably will never have a like occurrence again.—I think W. Z. H. was right, for the small crop of honey has made a stir and excitement in the honey-market, such as was never known before since I can remember. It is now called for and bought up at good prices as soon as it makes its appearance, and I should not be surprised if prices go up a good deal higher than they are now before another crop comes to our relief. We are sold out here at the Home of the Honey-Bees about all the time, with the exception of our carload of California honey that we have had for several years, and some extra nice comb honey which we are selling at 18 cents a pound wholesale. We are now offering 7 cents for basswood honey, and 8 cents for a nice article of clover, delivered here; and if it does not come at these prices we shall have to keep raising.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

QUESTIONS BY A BEGINNER.

THIS is my first year with bees. I bought four colonies last fall in 10-frame portico L. hives. They were buried during winter according to the instructions of a local bee-keeper. They came out in spring rather weak; but as the hives were full of honey they built up rapidly. One hive cast a swarm in June; and as others were clustering and had queen-cells nearly ready to cap over, I swarmed them artificially as per the A B C book. The colony that swarmed naturally also swarmed again in a few days. I saved all, and now have nine, with but very little honey. The four I bought had over 160 lbs. of honey to go through the winter on, but I weakened the parent stocks by taking out frames containing both brood and honey, for the artificial swarms; and also one frame each for the natural swarms. Basswood was budded heavily; and as we had plenty near by we supposed they would at least fill their brood-frames with winter stores. They worked like beavers while the basswood lasted, but there are still some empty frames, and some with a little comb and honey. Now, I study the A B C and GLEANINGS, and am well paid for all time so spent; but it is somewhat like a beginner joining an advanced singing-class—all very interesting and fine; still, one feels the need of the rudiments. For instance, I might open every hive I have, and I could not tell whether it were better to unite the swarms or to feed them for winter. Neither could I determine the number of frames to leave in the hive;

whether it were best to contract or not, and to what extent. A writer in the *American Apiculturist* of last year said he aimed to have all brood hatch by Oct. 1st, as he wants no "baby bees" for wintering. He does not tell how to control brood-rearing, and I am yet in the dark. Now about wintering. I don't care to go to the expense of chaff hives. Can I not safely pack chaff around and over the hives, placing them first all close together? I dislike to bury them, for they came out so weak last spring that I should rather try some other plan.

I do not write this in a critical mood on account of what I fail to find in the A B C and GLEANINGS. They are admirable publications, and no doubt you have gone over the same ground many times before; but a discussion of the best way to manage colonies in this poor year, that are short of stores, and weak, would help me greatly, and perhaps others, just now.

C. H. MURRAY.

Plainfield, Will Co., Ill., Aug. 6, 1887.

Friend M., the things you mention can not be learned all at once. The more your heart is in it, however, the quicker will these difficulties become easy. Perhaps no one can tell you positively whether it is better to unite your colonies or feed them up just as they are. Sometimes one way would be the wiser, and sometimes the other. As a rule, however, safety is on the side of the strong colonies.—I do not think it makes very much difference how many frames you leave in the hives, providing they contain an abundance of stores. It is quite likely, however, that just about so many as the cluster covers, and no more, will be best. So you see the quantity of bees has much to do with the quantity of combs needed.—I shall have to disagree with the writer alluded to. I have induced bees to rear brood every month in the year, by feeding them pollen and honey; and the colonies that raised brood largely clear up into November seemed to winter best. I feel quite sure, however, that it is by no means necessary to have brood-rearing after the first of October. Bees will usually stop rearing brood at that time of their own accord.—Packing chaff around the hives you have will answer just about as well as chaff hives. After you have put it on or taken it off, however, year after year for several seasons, I think you will conclude the chaff hives are a saving of time, and money too, in the end.

A NON-SWARMING COLONY.

We have had a swarm of bees for three years, and have them yet. They have swarmed but once, and then they went back. This is the third summer, and no sign of swarming. We took the bees, not being able to buy. I have tried to have the widow who owns them share the expense of an Italian queen, but she very graciously tells me every time to do as I think best. They have barely lived through the winter, so you see we have solved the problem of successful wintering. Had they been our own, her head would have come off three years ago. She is a drone-laying queen.

Inland, Mich., June 12, 1887. H. T. DAVIDSON.

Friend D., bee-keepers are not usually particular whether bees swarm or not, so they produce nice large crops of honey. Now, I

should not think of replacing the queen just to get swarms. You do not say anything about the amount of honey received. If satisfactory, let them go on. I presume you do not mean by the term "drone-laying queen" that your queen produces *all* drones; for in the latter case the colony is already virtually extinct. Unless the drone-laying queen is removed, and that promptly, the colony is lost.

QUESTIONS ON WINTERING, BY A BEGINNER.

I shall be pleased to have you answer the following questions in GLEANINGS: In a 10-frame Langstroth chaff hive is it best to leave the frames just as the bees have them filled for winter, or would it be better to change the center frames to the outside of the hive, and bring the outside frames to the center, as they are better filled with honey? How many frames should be left in the hive when 10 frames are used? and if any are taken out, how should the space be filled for wintering on summer stands? Do bees sleep? has been a question asked me. The honey crop in this county is less than half a crop, and but very few swarms.

P. M. LITTLE.

New Waterford, O., Aug. 22, 1887.

By all means, friend L., leave the frames just as the bees fix them. They know how they want their stores fixed for winter, a great deal better than you do. The number of frames to be left on the hive depends on the quantity of bees in the colony; but in most cases I think six or seven are quite sufficient, putting a chaff division-board on each side, in place of the combs removed.

BEEES DROPPING DOWN BEFORE THE ENTRANCE.

For information I must appeal to you in regard to my bees. I, as well as one of my neighbors, was somewhat puzzled over our bees on the 15th of this month. On the 15th it was cloudy all day, and rather muggy. Bees worked well on buckwheat (which is out in bloom;) but about 10 or 11 o'clock they appeared to drop or fall in front and all around the hives as far as 10 or 15 feet from the hives. The ground and grass, and, in fact, every thing they could cling to, was crowded with them. They appeared to be heavily loaded. A great many had pollen; and as soon as they would alight they would appear to be overdone. They did not disappear until about the same time next day. I should not have thought so much of it had not my neighbor's acted just the same way. I thought it might be an unusual occurrence, but it may be common.

JOHN W. GODDARD.

Upper Black Eddy, Pa., Aug. 17, 1887.

Friend G., I have seen bees, when heavily laden, drop down around the hives as far away as a yard, or four or five feet, perhaps; and when the weather suddenly turns cool they often get so chilled they stay in the sun until it warms them up before they will go into the hive; but I think I never saw them so far away as fifteen feet around the hive; and I have never seen them away from home at night unless the weather had turned chilly after they went out for food. As you state it, it seems to be something quite unusual. I do not believe that bees usually supersede their queens unless the queen is in some way defective, or fails to keep the combs filled with eggs as she

ought to do, and we have kept queens as many as two and even three seasons. Where they commence queen-cells, it is generally thought to be an indication that they contemplate either swarming or supersedure; but this is by no means always true.

LARGE BROOD-CHAMBERS, TO PREVENT BEES FROM STARVING DURING POOR SEASONS.

This present year, it seems to me, would settle the question of large or small brood-chambers. Ours, 7 Quinby frames, we think none too small, and we wish this year it had been 8, as it is a calamity to us to have our bees run out of honey.

Roseville, Ills., Aug. 15, 1887. MRS. L. C. AXTELL.

I am very well aware, Mrs. A., that a good many colonies could be saved by having the brood-chamber larger; but the question then arises, Is it policy to carry a surplus of honey, perhaps for several years, just because the bee-keeper might be careless, and neglect to look after their needs during a dearth of honey? By no means let us permit the bees to starve. If we have small brood-chambers, we must be more careful, and must look after the wants of our little friends better than if we permitted them at all times to carry a surplus.

IS ALSIKE A HYBRID?

In regard to a discussion between friends Muth and Cory, concerning alsike turning to red clover, I wish to relate a little experience in the matter. I sowed about three acres of alsike with oats. It came up and grew nicely; the second year it was two to three feet tall—a purple bloom, and the bees worked on it strong. The next year red clover sprang up almost entirely. I plowed it under and put in wheat, all but a little gravelly corner, which has sprung up this spring in alsike again. It seems to be a hybrid, crossed between red and white. It first goes to one and then the other. There can be no mistake about the way this clover did. The seed sown was not half as large as red, and a darkish-brown seed.

C. L. GOUGH.

Rock Spring, Mo., June 6, 1887.

Friend G., our best authorities seem to decide that alsike is not a hybrid — see recent articles on this subject in GLEANINGS; we are therefore obliged to conclude that red-clover seed had been for some years in your soil; but the conditions not being just right it had not before germinated. I believe it is a fact, that red clover very often comes up, and sometimes so as to make quite a good stand, where no alsike has been sown at all. A great many times the matter is passed by, without giving it any particular notice, and this is one reason why so many insist that alsike finally turns to red clover.

ABSCONDING, AND LEAVING COMBS OF HONEY AND BROOD.

The six queens arrived safely, and we divided four of our most prosperous stocks, giving them, of course, a queen, which they took. They all appeared to do well. One day last week we found two of the divided colonies had taken flight. Is this a common occurrence, with brood and honey in the cham-

ber, with six combs in each hive? We account for it only by supposing the gathering of honey was slow work for them at this season, and they were discouraged. Do you think it a good plan to work over the bees much? WM. E. PAYSON.

Boston, Mass., Aug. 11, 1887.

Friend P., this is a very unusual thing indeed, to happen in the month of August. I should think it must be caused by the dearth of honey, and I should also suppose there must have been only a very small quantity of honey remaining in the hives.

DO ITALIAN BEES GATHER HONEY FROM DIFFERENT PLANTS THAN BLACK BEES?

On page 36 of the A B C book you say you found Italians apparently just as thick on wild plants after taking away four bee-trees as before, indicating that there were more trees in the same vicinity. Now, I don't understand that. I thought Italians worked on the same flowers, whether they were in a tree or in one of your best Simplicity hives. I don't see why finding them on wild plants should indicate that they came from the woods. L. W. NASH.

Kennebunk, Me., July 27, 1887.

You misapprehend, friend M. Italians do, as a rule, work on precisely the same flowers that black bees do. The point made in the A B C book is this: After I had captured and taken home four colonies of Italians, about as many were found working on the blossoms in that vicinity as before—indicating there were still more stocks of Italians that I hadn't captured. You see, this was when Italians were first brought to Medina County, and only this one swarm had escaped and gone into the woods. Italians will many times be found working on red clover when common bees are almost exclusively on buckwheat, indicating that the Italians more readily get the honey from red clover. This is the only case I know of where the different races choose different honey-producing plants.

BROOD-FRAME MEASUREMENTS.

Will you please answer the following questions?

1. What should be the *exact* width of end-bars of closed-end frames?
2. What is the *exact* thickness of worker-brood comb?
3. What is the *exact* space that should be left between the worker-brood combs as they hang in the hive?

M. A. KELLEY.

Milton, W. Va., July 26, 1887.

The width of end-bars of closed-end frames should be about $1\frac{1}{2}$ inches. In the new Heddon hives which Mr. H. sent us, we notice the width of his end-bars is a scant $1\frac{1}{8}$ inch.—The thickness of brood-combs is usually rated at $\frac{7}{8}$ inches.—The space that should be left between the worker brood-combs should be $\frac{1}{2}$ inch. In other words, the combs should be spaced so that they are distant from center to center $1\frac{1}{2}$ inches. Some, however, claim that the distance should be $1\frac{1}{4}$ inches. The former measurement is the one adopted in the ten-frame Langstroth hive. We can not give you the exact measurements in all cases which you call for, as the authorities differ somewhat. The measurements which Mr. L. gives us, I think we consider about right.

THE DISPOSAL OF SEWAGE.

In regard to the disposal of impure water from closets, kitchens, sinks, etc., only two ways can actually be considered safe. The first is to under-drain a sufficient plot of ground and turn into the cesspool waters a large quantity of pure water. The whole will be absorbed by the earth and vegetation (meadow or muck patches). The plan as stated in engineering books has been successfully carried out. I am inclined to think, that eventually the roots (especially of neighborhood trees) will choke the drains, and require frequent repairs. The other and far the better way is to kill all germs at once with some substance cheap enough. The sulphate of iron (copperas) is said to be the best in all respects, though lime might perhaps do as well. It must be remembered, that, though the dead matter in water is easily decomposed and absorbed by the earth, it is not so, or probably not so, with the living germs. ADRIAN GETAZ.

Knoxville, Tenn., June 23, 1887.

BEES WORKING ON FRUIT.

Can you tell me what makes the bees eat the peaches so this year? They are eating all there are around here. They eat at them till they commence to rot, then stop. Some say it is the Italians, because this is the first time they have eaten them. They trimmed a tree clean for us, and now they are starting on another. The peaches don't seem to ripen as they ought to this year.

How would it do to put an alighting-board on the chaff hives, like the one you put on the Simp. bottoms, only make them about 4 inches wide instead of that V-shaped piece? F. S. BERRY.

Montoursville, Pa., Aug. 6, 1887.

If the bees seem more disposed to attack the fruit this year than in former seasons, I think the trouble is not so much due to the race of bees as to the extended drought which we have had almost everywhere. In consequence of the very dry weather there has been little or no nectar in the blossoms. If you had nice ripe fruit, particularly if it were damaged in any way, I think it was not strange if the bees did attack it, because there was nothing they could get besides the stolen sweets from fruit.—You could make the same kind of entrance on the chaff hive as we have on the Simplicity, but we can not see that there would be any advantage in it. On the other hand, there would be several reasons why it would not be as good. The alighting-board to the Simplicity hive might afford a good place for the bees to alight, but it would not answer at all for contracting the entrances as can be done with the Simplicity. Again, it would project out too much; and, furthermore, it would be much more expensive than the little V-shaped strips we put on.

FLAT-BOTTOMED FOUNDATION—SOMETHING IN ITS FAVOR.

During the honey-seasons of 1886 and 1887 I experimented in a small way with flat-bottomed foundation in supers. I have tested it in every way which my imagination could suggest, to see if I could discover whether the bees have any choice between that and that with natural base. When bees were storing honey moderately well, I have put on supers with sections filled alternately with flat-bottom and natural-base foundation; and on examina-

tion the next day it would all be drawn out so nearly equal that I could see no difference therein, and could tell which had the flat bottom only by the mark which I made upon the sections. Again, if very thin flat-bottomed foundation be put in the supers at a time when no honey is being stored, and this state of things continue for any considerable time, the bees will sometimes appear to nibble it off or cut it away. I think that they use the wax for capping other combs, while at the same time they will leave heavier foundation untouched. My limited experience inclines me to the conclusion that, when there is a good flow of honey, the thin flat-bottomed foundation will be accepted and appropriated by the bees without any hesitation; and if such are the facts, then there would be quite a saving for the apiarist to use the thin foundation; and, what is better still, the honey would contain more natural comb, and less of manufactured wax, which is so often compared to fishbone in honey.

Seymour, Wis.

JOSHUA BULL.

Thanks for the results of your experiments. We are glad to hear something in favor of flat-bottomed foundation, even if it is not of a very positive nature. We are inclined to think that, during a good flow of honey, the bees would show little difference in favor of either the flat-bottom or the natural-base foundation. We should be glad to hear from others who may have compared these two kinds of foundation.

REPORT FROM INDIANA.

The honey crop in this section of the State will be very light. There will be but little surplus. The whole season has been very poor. The spring opened with prospects fine, but it has been very dry nearly the whole season. White clover, though blooming well at first, seemed to produce but little honey. The hot sun seemed to check secretion. Basswood produced but little. Goldenrod is coming into bloom, but not a bee is to be seen on it. It is three weeks earlier than I ever saw it before. We have had over four weeks of steady and extremely warm weather, and the last two weeks hot. The thermometer has averaged above 86° the past week. It has reached every day 90 and above; several days 100 and above, up to 104. We have had two fine rains since the 4th of July, but the sun has come out so hot that it seemed to do vegetation but little good. Corn and potatoes are badly injured, and the ground is so dry that farmers can not plow for wheat. Bees have generally gathered enough to winter on. I don't think the honey market will be overstocked this season, and prices will be good.

A. D. STOCKING.

Cedar Beach, Ind., Aug. 2, 1887.

BEE BOTANY,

OR, HONEY-PLANTS TO BE NAMED.

VITIS BIPINNATA.

AS I have found one of the greatest honey-vines in the South, and can not find any one who can give me the name, I inclose you a small twig of the vine. It blooms from early spring until fall. Bees are booming on it now, and have been for over a month since I first discovered it. Please give the name. It is plenti-

ful in this country. It has ripe fruit and blossoms on it now.

F. M. DAVIDSON.

Collinsville, Ala., July 19, 1887.

[The plant you send us is *Vitis bipinnata*, T. and G. The botanists say nothing of its qualities as a honey-plant.]
Columbus, O., Aug. 2, 1887. Per Craig.

THE ROCKY-MOUNTAIN BEE-PLANT.

I am trying to find a name for the plant of which I inclose a specimen. Is it what is called the Rocky-Mountain bee-plant? As you see, it has a purple bloom; it grows about 18 inches high, sending out branches in every direction.

C. E. CARROLL.

Parma, Col., July 26, 1887.

The specimen of plant you send is the Rocky-Mountain bee-plant, as you suggest. You will find a full description of it in the A B C of Bee Culture.

REPORTS ENCOURAGING.

DEFEATED, BUT NOT DISCOURAGED.

BEES have done quite poorly this season. I had only one stand out of 30 that went into the supers. It made about 12 lbs. of marketable honey. I have one stand of hybrids which secured about 50 lbs. while many of the blacks did almost nothing, and are now in a starving condition. White clover commenced yielding honey on two occasions, but each time it was stopped by heavy rains. Basswood gave honey about two days. There is yet some prospect of a crop of fall honey, which will be most gratefully received. If my bees had all been Italians or hybrids, like the one mentioned above, I should have done quite well. I have heard of bees fighting and stinging the operator when a hive was opened (when robbers were troublesome). I have handled blacks for 4 years, and have now 35 stands, yet I have never had the experience mentioned. Are not blacks inferior to Italians in poor seasons, and equal in good ones?

N. J. FLINT.

Georgeville, Mo.

Friend F., do you mean to say that robbing in your apiary does not increase the danger of stings when you open a hive? The point is this: When there is a dearth of honey, and the bees find nothing in the fields, they hang about the hives or in the honey-house. If every thing is kept out of their reach, however, little harm is done; but let them get a notion that honey may be stolen from neighboring hives a hundred times faster than they can get it from the fields, and bees, like human beings, begin to develop bad and vicious tempers; and after this thing has got well started, we have more trouble with stings than we ever had before. In fact, it not only troubles the proprietor, but his neighbors, and the teams in the street, if he does not take prompt measures to stop it. My impression is, that the trouble with bees in or near towns or cities has pretty much all come about by this sort of carelessness. I have not had much experience with black bees in this line, of late years; but I never noticed that they were very much different from Italians. I do know, however, that hybrids are ever so much worse than either race pure, when

robbing and stinging get to be the order of the day.

OVER ONE TON OF HONEY.

The season came to a close very suddenly. The honey crop was light in this county. I shall have something over one ton, almost all box.

Romulus, N. Y., Aug. 8, 1887.

J. F. HUNT.

ENOUGH TO WINTER ON.

Our bees gathered about enough in one week to winter on. They stored it above, and it was taken as surplus. The prospect is now that I shall feed as much as I have taken. There is, therefore, now really no surplus. I have some hopes yet from red clover and aster.

S. W. MORRISON.

Oxford, Pa., Aug. 9, 1887.

RECEIVED \$500 FOR A LAST YEAR'S CROP.

It is getting rather late to send in my report for 1886, but better late than never. I have just got through disposing of my last year's crop. I had 3335 lbs. of white-clover honey, for which I received 12½ cts. per lb., amounting to \$405.95. Then I had nearly 700 lbs. of very dark honey, which I sold for 5 cts. per box. I also had 500 or 600 lbs. of extracted. We ate of it gave some away, and what I sold brought me \$37.00. Altogether I received between \$490 and \$500 for my crop. I started in the spring with 51 colonies, increased to 68. J. A. KENNEDY.

Farmingdale, Ill., June 13, 1887.

REPORTS DISCOURAGING.

"NOT MUCH HONEY."

I FIND, in looking over my bees, that there are some colonies that have not got honey enough to winter on. The weather has been so very dry all summer that bees in this part of the State have done nothing. One gentleman living not far from this city ran his apiary of 40 colonies for comb honey, and said he did not get a pound. Another, of about one hundred colonies, ran half for comb the other half for extracted, and got only about 300 lbs. of extracted, so you see it is considerably discouraging. A gentleman living eight miles from here ran 40 colonies for comb honey, and got about 1000 pounds. He uses the Simplicity hive, but took out three brood-frames and put wide frames on the side with sections in. The side storing seems to be good. A. E. SMITH.

Darlington, Wis., Aug. 12, 1887.

BEES STARVING.

Bees are starving as fast as time rolls around. I came from Texas a few days ago and found half my bees starved out. I am feeding the others. It has been the driest time since 1881. Grass, weeds, corn, and all are burning up. There is a good prospect to-night for a rain. If we should have such, bees would store winter food from Spanish needle yet. If this is not discouraging I hope such a time won't come.

W. W. ADDISON.

Bumpus, Ill., Aug. 11, 1887.

HALF A CROP.

The honey-crop in this section is less than half. It is very dry. Honey is moving moderately at 14 and 15 cents. The market is getting firmer. It gives us more light in regard to the kind of foundation to be used in sections. Poorly drawn founda-

tion, with some honey on each side, is not very tempting to the consumer's appetite, and I have good reason to believe that there is much such goods that goes on to the market, and I am afraid of the consequences.

A. A. HARRISON.

McLane, Pa., Aug. 15, 1887.

HONEYED VISIONS GONE; IS IT FOUL BROOD?

I "swarmed out" with a new "queen" on March 20, and have been very busy since, fixing up. You have been asking, through GLEANINGS, for "Reports Discouraging." While I myself am not discouraged, and still less ready for "Blasted Hopes," my report for this spring, and the prospects for this summer, certainly present a discouraging front. All my sweet hopes and honeyed visions have been taken themselves to ignominious flight, leaving my pocket-book under the elephant's foot. I went into winter quarters with 10 full colonies, 2 five-frame, and 3 four-frame colonies. One colony was in a two-story Root chaff hive; the remaining 14 were in Simplicities, with chaff on top and sides; and notwithstanding a severe winter they came through in good condition. All were rearing brood nicely when fruit-bloom commenced (about the 15th of April). In the midst of fruit-bloom we had a week of wet weather which put them almost on the starvation-point. It checked breeding to some extent, and caused them to kill their young drones.

About the first of May I purchased 4 more colonies, making me 19 in all. In the latter part of April and the first part of May I moved them about 1½ miles; when I moved the second lot I examined them (May 3) to see if any combs were broken down, and was astonished to find 3 colonies with diseased brood. The symptoms did not, nor do they yet, tally with those given in the A B C and in various numbers of GLEANINGS, of foul brood. A friend told me he had a colony similarly affected last year, which he cured by introducing a new queen; so I thought I would try that. I gave them capped queen-cells. The queens are not yet laying. A few days ago I found three more colonies in different parts of the yard taking the same disease, so I determined to try Prof. McLain's remedy, given on page 697, GLEANINGS, 1886, except that I could not extract the honey, which is hardly necessary, since the most of my colonies have very little honey (white clover is a failure). The peculiarity of the disease is, that about three-fourths of the brood dies just before it is ready to cap over. Very little dies after it is sealed. The greater part of the affected larvae shrink, just as if something had sucked their juices, and finally dry up entirely; now and then one turns to a brownish-looking mess. This seems to be the case only with those that die about the seventh day from hatching. There are no sunken cappings nor pinholes. Of course, there is an unnatural smell about the hive, but not what that from true foul brood is, judging by the descriptions in A B C and GLEANINGS. A. L. HEIM.

Chandler, Ind.

From the facts you relate, I should rather judge the disease you found among your bees was foul brood. You know, I presume, there is one phase of it where the brood dies before being capped. However, in our experience we never noticed unsealed dead brood without finding some in cells capped over. I think, if you were to rake over the cells of capped brood, where you find the

unsealed diseased brood you would be pretty sure to find diseased brood. You did not say whether you were successful in treating foul brood by McLain's method.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

When Should we go to work to Raise the Best Queens?

Question No. 1. If the bees supersede their queen in the fall or spring, is such queen as good as one raised in the swarming season? M. E. W.

Yes. DADANT & SON.

Yes. PAUL L. VIALLO.

Not with me. DR. A. B. MASON.

Yes. I think they are, providing there is a good strong colony of bees at the time. E. FRANCE.

I have but few queens superseded. Their successors, even when raised in the spring or fall, have shown no signs of inferiority. W. Z. HUTCHINSON.

If raised in a strong colony, the old queen being present till the young one is raised, I think the difference, if any, is slight. C. C. MILLER.

Theoretically, no; yet I have had queens superseded in the interims of the honey-harvest which were among the best I have ever had or seen. A. J. COOK.

Yes, providing the old queen keeps laying or stays in the hive till the queen-cells are capped over. If the supersede comes from the death of the old queen, no. G. M. DOOLITTLE.

Yes. Mr. Langstroth said at Detroit, that he had noticed, when bees superseded their queen, that it invariably proved to be a good one. They are dissatisfied with their queen, and undertake to rear a better one, and do it. MRS. L. HARRISON.

Under certain circumstances, such a queen might be good, and no doubt as good as many of the queens raised in the swarming season; but as a rule, governed by natural principles, such a queen will not be as good as one raised in the swarming season. JAMES HEDDON.

I have watched this point closely for a number of years, and have been able to detect no difference, unless it was that such queens are not usually as long lived as others. O. O. POPPLETON.

It would be well if we had more positive data than seem to exist at present as to the value of queens reared out of season. In default of this it will help some for bee-men to give their impressions, as I proceed to do.

1. Queens reared too early are worthless for lack of fertilization.

2. Queens reared late enough to be fertilized will average a little below, but not very much below, queens reared under the swarming impulse.

3. Queens reared after swarming is over are liable to be quite inferior, but not certain to be so.

E. E. HASTY.

It seems to me, friends, there is one point in the above that you have not touched upon. It is this: Some colonies, as you know, will rear an extra queen to work side by side with her mother; and as fast as these extra queens are taken away they will rear more. At different times, when this subject has been up, the importance of developing this trait has been mentioned. Now, these queens, no matter when they are reared (providing, of course, the weather is warm and the bees are getting pollen and honey), are among the best and longest lived we have had. Have you not found it so?

How many Pounds per Colony do our Best Bee-keepers get, on an Average?

Question No. 2. What do you consider an average yield of honey per colony (mention whether comb or extracted) in your locality? S. J. M.

Extracted, 50 lbs.; comb, 25 lbs.

DADANT & SON.

Sixty lbs. of extracted. DR. A. B. MASON.

100 to 125 lbs. extracted; 75 to 100 lbs. comb honey.

PAUL L. VIALLO.

Fifty lbs. of comb; 80 of extracted.

W. Z. HUTCHINSON.

Fifty lbs., spring count, taking an average of several years. I have had little experience with extracted honey. MRS. L. HARRISON.

About 75 lbs. of extracted, or 50 lbs. of comb honey, and an increase of nearly 100 per cent, would perhaps be about an average in all the years I have kept bees here. JAMES HEDDON.

My own average for over a dozen years past in Northern Iowa was 110 lbs. per colony of extracted honey. My experience is too small in this locality to give any estimate. O. O. POPPLETON.

According to my records for the past 12 years, my bees in different parts of this, Ventura Co. (Cal.), have yielded me about 85 lbs. per hive annually, spring count, all extracted honey. I suppose mine will about average with others of the county. R. WILKIN.

My average yield has been not far from 75 lbs. comb honey, and 150 lbs. extracted, according as worked for, each year for the past 14 years, a larger average yield for the first 7 years than the last 7. G. M. DOOLITTLE.

In estimating 50 lbs. comb and 75 extracted, I should think I was quite low. I have taken 100 lbs. of comb several years in succession; but a few such years as the present will bring it away down. A. J. COOK.

For 18 years the average yield has been 39½ lbs. comb honey. Greatest yield per colony in any one year, 117 lbs.; least, 0. With good management and no overstocking, I think the average might be 50. C. C. MILLER.

We have run for extracted honey for several years past. Taking the years 1883, '84, '85, and '86—four years in succession—our average was 103 lbs. per colony, spring count. But this year our yield was only 50 1/2 lbs., or about 12 lbs. per colony, as we had 415 colonies, and we are not sure but we shall have to feed back all we got, if not more, to winter

the bees. See GLEANINGS, page 976, 1886; also this issue, page 655.

E. FRANCE.

My locality is a very poor one, and the average yield of section honey is less than 20 lbs. To partly balance this, the spread of fall flowers and the supply of spring pollen are so large that it seems to make little difference how many colonies are kept. Even in very bad seasons there is pretty sure to be some surplus; and with the yield as low as 10 lbs. per colony one can get quite a pile of honey *if he keeps colonies enough*. It is a live man's business to see just where his main chance is, in his own location and circumstances, and go in on it.

E. E. HASTY.

Many thanks, friends, for the care which you have given these reports. It did not occur to me before, that any thing of so much value could be put into so small space. I was especially pleased to see our jolly friend C. C. Miller put in that 39½ lbs. I can imagine a mischievous smile twinkling on his countenance when he put in that *half-pound*. Old fellow, why didn't you say 40 lbs., when you came so near it? I suppose you have heard of the witness who, when asked how far he stood from the parties who were fighting, replied, "Just 17 feet 9 inches." When asked how he came to be so accurate, he said he expected some lawyer or other blundering fool would ask the question, and so he took his rule out of his pocket and measured the distance exactly. Now, friend M., I don't mean to say that of you, but I feel glad that you sat down and took time and pains to tell us exactly what we have a right to expect, without any guesswork about it.

How many Pounds per Colony have been Secured by our Experts, and how much does Overstocking Affect these Results?

Question No. 3.—What is the largest yield (comb or extracted) you have ever known in your locality, from a single colony? In your judgment, what is the largest number of colonies that could have been kept in that one place, that season, without diminishing the yield of that one colony? M.

Two hundred and fifty pounds of extracted. Ten.

DR. A. B. MASON.

1. 195 lbs. comb. 2. Perhaps 80. C. C. MILLER.

1. About 450 lbs. extracted. 2. About 100 colonies. DADANT & SON.

A single colony, spring count, 200 lbs. The old colony, 120 lbs., and its swarm, 80 lbs.

MRS. L. HARRISON.

First, 309 lbs. comb. Second, 566 lbs. extracted. Third, 150 colonies. The above yields were taken by myself in 1877.

G. M. DOOLITTLE.

1. 302 lbs. The average of all was nearly 200 lbs., and I think that, if there had been 500 colonies, the yield would have been as much. It was the best season I ever had.

PAUL L. VIALLO.

To the first part of your question I will answer, 410 lbs., 48 of which were comb, the rest being extracted honey. The latter part of your question relating to overstocking is one that has puzzled me much, and on which my 18 years of bee-keeping, most of which has been on an extended scale, does not warrant me in attempting to answer.

JAMES HEDDON.

In 1887 my bees, 416 hives, at Sespe Apiary, yielded me an average of 185 lbs. extracted. There were about 1000 colonies besides these, within two miles of mine. Localities where only a few were kept yielded perhaps one-fourth more. We rarely keep an account of the yield of a single hive here.

R. WILKIN.

In 1886 we had 12 colonies that averaged 164 lbs. There were 61 colonies in that apiary. I never saw a location yet where I would believe 100 colonies could store as large an average yield of honey as would a less number. We keep from 60 to 80 colonies in a place. I think that enough for profit.

E. FRANCE.

I have never kept the honey of each colony by itself with sufficient exactness to answer the query. The year 1886 was the best season I ever had, when 50 colonies stored 6800 lbs. of comb honey and 200 lbs. extracted. I think 100 colonies might have been kept without lowering the yield *pro rata* very much.

W. Z. HUTCHINSON.

I can not say. The largest net return I ever knew from a single colony was \$70. On several occasions our bees have netted us \$20 or over, per colony. I should prefer not to have more than 100 colonies at one place, though on certain years I believe more could be kept with no loss.

A. J. COOK.

I worked my apiary as a whole, and not as so many single colonies, and know but little about yields from single colonies. The largest amount of extracted I know of getting from one colony was 275 lbs., and from another 160 of comb. Any answer to the second part of the question would be pure speculation.

O. O. POPPLETON.

My own best yield is 142 lbs. of sections from a colony and its increase. I can not at this moment tell if my immediate neighbors have surpassed it or not. Very likely one colony more would have decreased the yield *some*; but I do not think that a hundred more would have decreased it more than one-fourth. I agree with the prevalent opinion about overstocking as to most locations, but my location is peculiar (see last answer). In working on basswood also, my bees have to go four or five miles to reach it; and when they get there, there is a good deal of it; so the number of colonies does not seem to signify much.

E. E. HASTY.

These answers seem to indicate that but little is known positively in regard to this vexed question of overstocking. I can imagine just how Dr. Mason straightened up his portly form when he brought his fist down, and declared that not more than ten colonies could have been kept in the yard with the one that gave 250 lbs. in one season, without affecting the result, and I am inclined to agree with you generally. We have had so many large reports from small apiaries—that is, large compared with the reports per colony from large apiaries—that I do believe a small apiary will, as a rule, give the best results; but the question then arises, Will it not pay us better to keep 100 colonies, even with a much smaller average per colony, than to have our bees located in so many different places? I don't believe, however, that it is best to increase to such an extent that we get down so low as 10 lbs. per colony on the average, as friend Hasty puts it.

MYSELF AND MY NEIGHBORS.

Why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?—MATT. 7:3.

WHEN do we see our neighbors' faults so plainly and so easily, while it is with so much difficulty that we can be made to see and comprehend our own? I have just been thinking of one reason for this state of affairs. There are several reasons, but I am pretty sure this one is an important factor. It comes in something this way: The world says, "Every man should first look out for number one." The Bible says, "Not so. Thou shalt love thy neighbor as thyself." The world says, "Look upon every man as a thief until he has proved himself to be an honest man." The Bible says to this, as I understand it, "Not so; but, rather, look upon every man as an honest man until he has proved himself to be a thief." Now, when I say this I also say, but by no means intrust even an honest man with a large amount of property in a reckless way. Even while you recognize that your neighbor is as good a man as yourself, you are not to be in haste to place temptation in his way. Many of the troubles and jangles that come about among the bee-friends are because things are left loosely. Business is done in a sort of heedless and careless way. One man sends on a lot of honey or beeswax, and does not even know how much he has sent. Now, friends, it seems to me you have no right to do things in this way, no matter whom you are dealing with. If you want to feel kind and charitable toward your neighbors, keep things straight as you go along. Instead of trying to remember the particulars of a transaction, write it down in white and black. If you keep bees on shares, have a clear understanding as to how it is to be done, and write it down and have both parties sign the paper, but don't either of you sign it without reading it through carefully. Having done this, abide by the paper, no matter who loses or gains. If you want to have confidence in your neighbors, keep business close and snug. If you are intrusting work to others whom you have employed to work for you, keep an eye on them. If you want the work well done, make arrangements so you can look after it often, then see whether your hired help understands exactly what your wishes are. Many people lose their confidence in their neighbors and in their fellow-men, because of their own heedlessness in this respect.

Friend Terry, in his potato-book, expresses strong doubts as to whether artificial fertilizers are of any value to the average farmer. I think very likely he carries the matter to extremes; but of this I am sure: That a great many pay out money for fertilizers when it does them no good whatever. What, then, are we to do? The agricultural papers of late are recommending that each farmer shall test fertilizers on his own grounds; that is, don't get enthusiastic, and take it for granted that because others have done well by the use of phosphates you can do well also. A good many, the first time

they try phosphate or bone dust, in their zeal will put on double the usual quantity. They take it for granted, that if a little is good more is better. Now, it is a very difficult matter indeed to be able to say positively what it was that gave you a crop. If you occasionally withhold the fertilizers from a strip of ground right through your lot, this affords pretty good evidence. In my earlier experiments with guano I killed so many of my choice plants that I began to wonder whether guano possessed any value at all or not. I became so disgusted with it, in fact, that the bag was allowed to stand in the greenhouse, without being used at all. Finally we had some celery-plants in boxes, that stood so long before being transplanted they began to look yellow and as if half starved. Watering them repeatedly did little or no good, for so many waterings had washed all of the fertilizing material out of the dirt contained in the shallow boxes. One of the boys suggested sprinkling a little guano among the plants before they were watered. It acted like a charm. The plants started up with vigor. The foliage became dark green, and the growth rank. A teaspoonful of guano to one of the boxes helped them wonderfully; but a handful might have killed them all. Now, my friends, while you have faith in God and faith in humanity, and feel anxious to do something for Christ and something to help your fellow-men, you might commence exactly as we commenced with guano. If a friend of yours is in straitened circumstances, and needs a little assistance, be careful about overdoing the business. Giving him so much help all at once may work as much mischief as the guano would if put on the strawberry-plants. Look into his circumstances carefully, and give him a little assistance at first; then watch and see how it works. If good comes of it, help him a little more in the same way, and so on with all your deal and intercourse with humanity. This is reason and judgment. Don't be in haste to do some big thing.

Last evening a missionary just returned from Africa made a remark something like this: A man who is doing mission work at home will probably do successful work in Africa. If he is not bringing souls to Christ in his own neighborhood, he will rarely succeed in doing so in Africa. If you want to be a missionary, commence right where you are, commence with little things. When you succeed with the neighbors you have, with commonplace individuals, you will probably succeed in a wider field; but don't start out in a wider field all at once.

I have just been pained by a letter from a younger brother of mine. He is trying to be a Christian, and trying to be a good member of society; but he has troubles and trials and tribulations beyond those common to most men. Why is it, he says, that when I am trying to do right, I get deceived and wronged at almost every turn? The trouble is, my friends, he is trying to do too much. He owns a large farm close to a growing city; but instead of staying at home, and keeping an eye on every acre of that farm, he has two or three times tried

starting business in town. He intrusted his stock, buildings, and land, to hired tenants. First, he didn't get any rent. The next time, he let his land out on shares. The result was, that two or three of his horses were worked to death, and other things managed in much the same way. He trusted too much to humanity in one way, because he didn't have his business under his personal supervision. I am afraid he rushes to the conclusion that these people are all bad and selfish and evil. I presume, dear friends, they are no worse than the neighbors you have right around you, or, to come still closer home, no worse than you or I. May be they hadn't sound judgment to undertake the management of a large farm, and ought not to have been trusted in this way. When you have faith in the good intentions of your neighbors, remember they are frail and human. Thus without having any hard feelings toward them particularly, you may remember they are selfish. Many a good steady hard-working man has been made to show to a great disadvantage simply because he has been pushed into some place he was not competent to fill. Some people do not seem capable of having money in their possession without paying it out foolishly. Now, I don't believe it is right to call such people thieves because they pay out money that does not belong to them. I have known quite a number who seemed to be honest and upright and straight in every particular until some money or property was injudiciously put in their hands for safe keeping. At first sight one would be tempted to think that they yielded to temptation; but a more careful investigation seemed to indicate there was no particular temptation about it. They simply let the money slip without being hardly aware they were responsible for it. Had they been tried first with a very little money or a very little property, to give them a little practice in the way of assuming responsibility, they would probably have turned out all right. But it was like the guano in my experiments with strawberries. They hadn't even been educated up to the point of bearing responsibility by careful tests on a small scale. Now, dear friends, I want you to think kindly of those about you; I want you to think kindly of all your neighbors—even the bad ones. I want you to think kindly of the criminals in your county jail; and if the suggestions I have thrown out in this paper shall be the means of causing you to inquire whether the bad state of affairs is not owing a great deal to injudicious acts such as I have mentioned, I shall have accomplished my purpose.

A poor unfortunate fellow-being is now confined in our county jail for attempting a crime that makes all good men and women shudder. In fact, a mob gathered round him and might have taken his life had he not been rescued by the proper authorities. The man is a laborer in a neighboring stone-quarry. During a kindly talk with him I felt pretty well convinced that he was nothing but a commonplace individual, not particularly worse nor better than thousands of others. I did not notice any thing vicious

about him, nor any signs that he was lost to good feelings and good impulses. A slight stoppage in their work at the quarry induced him and some of his fellow-laborers to take a holiday at a beautiful lake near the center of our county. This lake is quite a fashionable pleasure-resort; but, alas! a beer-saloon disfigures its grounds. This man is a foreigner by birth, and, of course, he must have some beer. Very likely something besides beer crazed his brain and inflamed his passions; but for God's sake, friends, don't be in haste to conclude that such or such a one is absolutely bad. Don't be in a hurry to say that the best place for him is inside of the penitentiary walls; and don't be so hasty in your condemnation as to say the mob ought to have killed him under the circumstances. Christ died for even such as he. I would not save him from the penitentiary: I think he ought to go; and I suppose it is best to let the law take its course, even where these feeble-minded people are so thoughtless as to use money which they have no right to use. But does it not behoove us all, especially those of us who are followers of Christ, to be careful how our careless or heedless acts make our friends and neighbors stand to bad advantage before the world? Be sure, dear friends, there is not a beam in thine own eye before you undertake to pluck out the mote from thy brother's eye.

TAILOR BEES, ETC.

PROF. COOK TELLS US SOMETHING ABOUT DIFFERENT MEMBERS OF THE BEE AND WASP FAMILY.

WE received from John Linersridge, Anguilla, Sharkey Co., Miss., a lot of bits of leaves, cut up in round circles, done up in brown paper. He said he found it in one corner of a hive, but did not know what to call it. We recognized it as the work of the tailor bees, as has been often mentioned in our journals; but as there was quite a quantity of circular leaves made concave, or cup-shaped, and nested into each other in this nest, we forwarded it to Prof. Cook who replies:

Editor Gleanings:

These are the curious cells of the interesting "tailor" bees—*Megachile* (see Manual, p. 28). These bees cut regular pieces—circular or oblong—from rose and other leaves, and by ingeniously fastening them together they form these hollow cylinders, which are stored with food, and then each is stocked with an egg. Often there are many such cells placed end to end at one place. I know a lady who left her knitting-work alone for a time, and upon taking it up found several of these cells within its folds. I have often found them in grass. The cells are about one inch long, and one-third of an inch in diameter. The bees are about the size of a common honey-bee, which they somewhat resemble. They may be told, however, by the bright shining yellow hair on the under side of their abdomens, and also by the curious way in which they raise this part of their body as they walk over the flowers. These yellow hairs are used to gather pollen, and such bees will be seen, oftentimes, with these hairs fairly loaded with the golden pollen-dust.

THE DIGGER-WASP.

The large wasp sent by one of your customers—you did not mention the locality, for which I am sorry—is the handsome "digger" wasp, *Stizus speciosus*. I have received it from Kentucky, Tennessee, Southern Indiana, and Southern Illinois. There is another, still larger, found in the Southern States—*Stizus grandis*. These wasps are black, or dark-colored, marked with handsome yellow spots on the abdomen. The thorax is brown.

This one sent has been known before to capture the cicada—usually, but incorrectly, called locust. I presume the insect captured in this case was a cicada, or harvest-fly. The true locusts are grasshoppers, and so, of course, belong to quite another order of insects. These wasps are called digger wasps, as they dig holes in the earth, where they place their prey, after which they lay an egg in the captured insect, when they proceed to cover all with earth. A still more interesting fact is yet to be told. The wasp is armed with a powerful sting. By aid of this she is able to paralyze large insects like our largest spiders, *cicada*, etc. Thus the prey of these wasps is simply stunned, and not killed, and so the young of the wasp, when the egg hatches, has right at its command fresh tender insect-steak, and has only to eat and grow fat. I doubt if these wasps ever do apiarists any serious harm. They are not sufficiently common. In Europe, however, similar wasps are a serious annoyance to bee-keepers.

A. J. COOK.

Agricultural College, Mich.

You have before told us something about this wasp that has the knack of putting away his fresh meat so it does not spoil—that is, paralyzing them by stinging so the victim will keep many days or even weeks in a state neither dead nor alive. Perhaps we might call it hibernation, only they never come out of it. Now, here is an interesting question for naturalists: How long may these insects be kept in this comatose state, induced by the stinging of this peculiar wasp?

A NAP BEFORE DINNER.

MRS. L. HARRISON GIVES US HER EXPERIENCE IN REGARD TO THE MATTER.

BRO. ROOT:—I've always thought you had a mistaken idea with reference to work—"clear over the horse" on that subject, and isn't that the cause why you are suffering with nervous prostration? Is there any reason why a person should toil from early morn till dewy eve, without any rest? I know women who always have "catch-up" work, and never allow themselves an idle moment; but the major part of them are nervous, and very fretful and unhappy at times. My mother worked every wakeful moment, and taught me to do the same; but when I saw her old at fifty, and in her grave twenty years before her brothers her seniors, I made up my mind that henceforth I would rest when tired. I have arisen at five in the morning, and worked very hard until eleven, and then left off and had a nap and an hour's rest before I ate my dinner; then I was able to do another half-day's work. If I could not get this rest I was good for nothing the rest of the day. An after-dinner nap didn't refresh me as the former. I've always thought that that hour's rest was worth more to my family than any other. Since

I've been keeping bees, I can not command this rest-hour, as the bees will not respect it at all; but I make up for it, as well as I can, by retiring earlier.

Bro. Root, when you are irritable and cross, don't attribute it to the "Evil One," but see if your stomach, liver, and nerves are not more to blame than this active gentleman. He may be entirely innocent of the charge.

MRS. L. HARRISON.

Peoria, Ill.

Well, I am really glad, sister H., to have your testimony in regard to my new hobby of doctoring without medicine; that is, doctoring some complaints without medicine; and I am glad to hear you say that the after-dinner nap did not answer. You are partly right, no doubt, in your closing remarks; that is, the part of our bodies intended to digest our food, and send the results of it into the proper channels, must have time and elbow-room to do its work. Digestion can not go on in a natural way when we feel as if a breath of wind would blow us over. I believe, however, that the Evil One is always watching his best chances. The Bible says, you know, that he is constantly going about like a roaring lion, seeking whom he may devour. Well, when we are so foolish as to overtax our strength and energies, Satan is always at hand; but a good Christian—one who has faith, and is rooted and grounded in Christ Jesus—should be able to say, "Get thee behind me, Satan," even at such times. By all means, fortify yourself physically against disease and all the consequences that follow, and at the same time be sure your feet are always planted on that Rock that stands, though heaven and earth should pass away. I am glad to hear you say that you more than make up for the hour or half-hour that might seem to be lost.

TOBACCO COLUMN.

SMOKERS FOR TOBACCO-USERS WHO ARE NOT SUBSCRIBERS TO GLEANINGS.

IF your offer of a smoker extends to non-subscribers, you may send me one. I have just quit smoking, after using it more or less for fifteen years; and if I use it again I will pay you for the smoker. I think I shall be as well off, both temporally and spiritually, without it.

New Lyme, O., July 21, 1887. J. N. RICHMOND.

Friend R., when we first proposed giving a smoker to any one of our subscribers who would give up tobacco, we had no thought of extending the offer to any but our subscribers, or, if you choose, to the GLEANINGS family; that is, those who read and contribute to the support of the journal. And by the way, friend R., I hope you will excuse me for saying that it seems to me that any one who proposes to take advantage of this liberal offer should be willing to subscribe for the journal making the offer. Recollect, there is no pecuniary profit in giving a smoker to those who give up using tobacco. We give you the smoker simply for your own good, or, if you choose, to encourage you in right doing, and with the understanding that you save money instead of losing money by accepting our little gift.

Now, taking it in that light, would you have the heart to ask us to give you this implement outright, when you don't care enough for our journal to subscribe for it? Aside from this, there is another point involved: He who receives a smoker for giving up tobacco expects to have his name appended to his promise to abstain; and this promise, with the signature, is to be printed in GLEANINGS. He himself reads this promise in GLEANINGS, and his friends all read it; and if he is ever tempted to break his pledge we hope and expect that somebody who reads GLEANINGS will remind him of the broken promise. But if he is not a subscriber to GLEANINGS, how shall anybody know of the public contract and agreement he has entered into? I think, my friend, your own good and your own safety depend upon your being a subscriber. There is one case, however, under which we think best to deviate from the above rule. Where any subscriber to GLEANINGS writes us that he will pay for the smoker if the friend breaks his pledge, this answers every purpose; and, in fact, I rather prefer to give them away in that manner: for the subscriber who is sufficiently interested to get pledges in this way will be quite certain to watch over his weak friend, and straighten him up if he shows symptoms of wanting to slip out of his contract; for almost any man, woman, or child, would rather pay the small amount of 70 cents than to have it said he had broken a promise given in print over his own signature.

I will pay for the smoker sent if I break my promise which I hereby make. T. H. VAIL.
Evans Center, Erie Co., N. Y.

I have quit the use of tobacco. If I use it any more I will pay you for the smoker.

F. M. THORNTON.

Hartwell, Hart Co., Ga., July 1, 1887.

I have quit the use of tobacco, and will never use it again. Please send me a smoker. If I ever use the weed again I will pay for the smoker.

Alburgh Springs, Vt. W. A. CRELLER.

By the grace of God I will quit the use of tobacco. If you will send me a smoker, if I ever use tobacco again I will pay for the smoker. May the good work go on! G. H. REED.

Anneville, Tex.

My friend Henry McClarin has quit using tobacco, and is working for me. Send a smoker; and if he uses tobacco again I will pay for the smoker.

D. C. UNDERHILL.

Manatee, Fla., June 24, 1887.

We received the smokers the 1st inst., and I was truly surprised at such a nice smoker. I have not only quit smoking and chewing, but have resolved never to taste a drop of that poison, liquor.

Kenton, O., Aug. 3, 1887. C. L. MOORE.

I do not use tobacco, and do what I can to dissuade others from using it. Mr. Rolan Routen, a neighbor of ours, and once a slave to tobacco, has quit, and says send him a smoker. If he ever uses it again he will pay you for the smoker, and I will see that he does.

R. F. CARTER.

Henry, Tenn., July 19, 1887.

I have quit the use of tobacco, and am trying to raise bees; but so far I have been very unsuccessful. I think perhaps by the aid of your smoker I could be more successful. If I begin the use of tobacco I will pay you for it.

W. W. RAMSEY.

Ashbeysburg, Ky., July 20, 1887.

I have been a moderate smoker for about two years; and if it is not imposing on your generosity you can send me a smoker. Send one also to a beginner in bee-business, by the name of Frank Schlingloof; and if either one of us commences again, I agree to pay you for both of them.

Kenton, O., July 26, 1887.

C. D. MOORE.

Please send a smoker to Mr. Lee Clow, Ozan, Hempstead Co., Ark., for he has quit the use of tobacco, and he says he will take the pledge. He has been a slave to its use for 25 years; he is now 54 years old, and he says he will pay for the smoker if he uses the weed again.

J. W. TAYLOR.

Ozan, Ark., July 26, 1887.

I notice that you propose to give a smoker to any one who will agree to quit the use of tobacco, and to pay for the smoker should he use it again. At the solicitation of my wife, I will take a smoker on those conditions; and should I begin the use of tobacco again I will remit you the price of the smoker promptly.

J. A. DANIEL.

Rockport, Aransas Co., Texas.

I have been using tobacco, both chewing and smoking, for 22 years. For the last sixteen years I have been keeping bees, and always used tobacco-smoke about the hives; but now you make war upon the weed, so I will quit. But as you seem to be interested in this matter, making a "hobby" of it, as it were, I shall be pleased to let you have your own way; so please send along the smoker, by mail; and if I ever give up and take to the use of the filthy weed I will pay you for two smokers.

M. A. KELLEY.

Milton, Cabell Co., W. Va., July 26, 1887.

I commenced using tobacco at the age of 15, and have ever since until about 6 or 8 months ago when my health failed and I decided to quit, and have succeeded so far. Will you send me a smoker? I promise you I will pay for it if I ever use tobacco again. We are having a very poor season here. I have taken only 12 lbs. of honey, and the bees are not storing any at present. I have 18 colonies to date. We have just had a few good showers of rain, and the buckwheat will soon be up. We seldom get any thing but fall honey.

F. J. DAHN.

Sturgis, Mich., July 6, 1887.

My uncle, Mr. F. S. Meuer, has only four stands of bees, all in Simplicity hives. They are doing well. He was in Bastrop about two months ago, and transferred a swarm, that was in a common box hive, into a Simplicity hive, for my other uncle, Mr. P. S. Rolfeigh. He is well pleased with his new stand now. Uncle showed him a copy of GLEANINGS, and he read it through. He was well pleased with the Tobacco Column, and he has quit using tobacco since he read it. If you think he is worthy of a smoker, please send it to him. If he ever uses tobacco again he will pay you for the smoker, and will also send two dollars and a half extra.

F. A. BURGIN.

Monroe, La., July 8, 1887.

A GOOD PLEDGE TO TAKE.

I have been looking over the Tobacco Column in GLEANINGS, and thought that something like this would look better:

"Dear Sir:—I have left off the filthy habit of smoking and chewing tobacco, and am saving about two dollars a month by so doing. Inclosed is that amount, the savings of the last month, and I want one of the best smokers made for that price. I not only save my money, but my wife says it does not make her sick every time I come into the house. If I ever commence the use of the weed again I hope that I shall have to handle cross hybrid bees without a smoker. I am giving the amount I formerly spent for tobacco to my wife, and she will soon have enough money to buy the best silk dress in town. L. C. WHITNEY."

Thanks, friend W. Your pledge is a capital one. By all means give the tobacco money to her who has been so faithful. Where is the good wife who will not make it go further than it formerly did? We should like to have some of the old tobacco-users, who have quit for a year or more, tell how much they have saved since—whether they are any better physically and morally. On the other hand, if any man is sorry he tried to give up tobacco, and afterward resumed its use, we should be glad to hear from him likewise, and his reasons for so doing. This column is open.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

FOUL BROOD.

I SAID in the last issue I would have something further in reference to carbolic acid as a bactericide for the germs of foul brood. Recent developments, however, have been such that I deem it unwise to say any thing further. In the mean time we shall continue experimenting, and when we have arrived at something definite we will report. Perhaps it would be well to remark that we have secured the services of Mr. E. H. Sargent, a graduate of the course in Natural History of Cornell University. Mr. S. was one of my old chums and classmates. He has had considerable experience with bees; and when I told him about our experience with foul brood he became at once interested. He is familiar with the growths, such as are found in diseases like cholera, yellow fever, and certain others. Having a little leisure time before going back to take a post-graduate course in the University, I asked him to try what he could do in cultivating foul-brood germs in gelatine. He has done so, and has met with apparent success. In due time he will send in written reports from the University, where he will continue his experiments. After he has succeeded in getting what he *knows* to be the real germs of foul brood, beyond any possibility of doubt, growing in beef gelatine, he is then to experiment, with the view of determining what agencies, whether dilute or not, will utterly kill the growth. If carbolic acid or absolute phenol will kill it, what dilution is necessary?

Mr. Sargent will have access to all the apparatus of the University. He will also have the advice and assistance of one or more of the professors. I am sure that a number of our readers will await the results of his experiments in this line, with considerable interest.

OTHER USES OF CARBOLIC ACID.

While experimenting, for the purpose of disinfecting diseased hives and combs, I have found that carbolic acid, when diluted to not more than 200 times, makes a very good apifuge—that is, the bees flee from it. One day a swarm came out and persisted, in spite of all our efforts, in clustering upon one particular limb, inconveniently situated. Again and again we shook the limb, and succeeded in getting a portion of the bees, at least, to cluster on the comb which we held before them. The other portion still directed their flight toward the aforesaid limb. Knowing that bees have a great aversion for carbolic acid we sprayed some of it, diluted 200 times, on the limb. Every bee, as he approached the much-sought-for place of clustering, on discovering it had a very perceptible as well as disagreeable odor, departed in evident disgust. Shortly afterward, however, we had the bees clustering just where we wanted them to cluster: i. e., on the comb. During swarming times the apiarist will find carbolic acid, at a dilution of 200 times, quite convenient.

Something over a month ago the robbers had a little taste of honey while one of the boys was working over one of the hives. After he had closed the hive there was quite a swarm of robbers tumbling over each other, as they endeavored to pass into the crack where we afterward discovered one or two bees could get in at a time. I sprayed carbolic acid around that portion of the hive. The robbers left it immediately. Nor did they attempt to get near the crack again until the liquid had evaporated; and even then they regarded the odor with evident aversion. In the *British Bee Journal*, carbolic acid has been mentioned as an agent for driving bees out of sections. I have not yet tried it, but I believe, when the acid is strong enough, and properly administered over the tops of the sections, that it will drive the bees down out of the surplus department into the brood-nest. There was so little honey coming in this year that I did not have an opportunity to try this and other things I wanted to do.

Later.—Since writing the above, Mr. Sargent and I have just viewed, through a power of 1200 diameters, the microscopic growth which infects the larvæ. Although we are not perfectly sure of it, yet we have good reason to believe that they are the real germs. That which we discovered is ovoid and somewhat transparent. When magnified 1200 diameters, or more than a million areas, these microbes appear to be only about half as large as a pinhead—so very, very small are they. To-night Mr. Sargent starts for the University, where he will pursue his investigations as mentioned above.

Still later.—It seems that what we saw, as above mentioned, was only the *spores* of foul brood.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, SEPT. 1, 1887.

Charity . . . thought no evil. — 1. Cor. 13: 5.

We have to-day, Sept. 1, 7638 subscribers.

We have a powder-gun that kills house-flies by the use of pyrethrum, as dead as door-nails, and we killed them in Ernest's new house, without shutting the outside doors for the very good reason that his house didn't have any outside doors, as yet, to shut up. I will tell you more about it, when I get to the next chapter in my new book.

HONOR TO WHOM HONOR IS DUE.

In Our Own Apiary, p. 482, mentioning the shipment of 25 queens without a single one being dead, we carelessly omitted to say the queens were sent us by Charles Bianconcini, Bologna, Italy. He has, since then, sent us a second shipment, only two being dead, and the third shipment is expected daily. We take pleasure in recommending friend B. to any who would like to try their hand at importing; and our readers who are writing us for queens, from California, New Zealand, Sandwich Islands, and Australia, we think had better, by all means, send their orders direct to Italy. I presume, however, it would not pay to order less than ten or a dozen at one shipment.

GLEANINGS POSTERS AT FAIRS.

To those who propose to exhibit some of our goods at their county fairs, we shall be pleased to send a few GLEANINGS posters, and sample copies of our journal, empowering the exhibitor to act as agent, and receive subscriptions for GLEANINGS. For every subscription so received, at \$1.00 each, we will allow 25% commission. Remember that, if you wish to take advantage of this offer, you must not cut on the regular price of one dollar, nor can you say in any printed price list or circular that you will take subscriptions for a less amount than one dollar. The idea is, to get you to obtain subscriptions by personal work, and to extend the subscription-list of GLEANINGS. This does not apply to renewals. We have no objection to your remaining agent after fair time, but subject to the conditions above named.

THOMAS WM. COWAN.

AMONG other places which the editor of the *British Bee Journal* expects to visit is Medina. We are not advised as to the exact time when he will be with us, but it will not be many days hence. Mr. Cowan is not only a practical bee-keeper, but a careful student in microscopy. In connection therewith he has made the anatomy of the bee, and the germs of foul brood, a special study. We hope our distinguished visitor will not fail to bring

along his microscope and microscopical slides. As foul brood is still a problem with us, Mr. Cowan's knowledge and personal investigations on the subject will be eagerly sought after, particularly by Ernest, with whom microscopy has been a favorite pastime. Our friend and brother-editor should not fail to visit the Home of the Honey-Bees, so called, with its throng of busy workers.

GOOD NEWS FOR THOSE HAVING HONEY FOR SALE.

The following is just at hand:

FRIEND ROOT:—Yours of the 26th is at hand. I am surprised at the offer of 7 cts. for the honey, delivered in Medina. I am offered 9 cents here, f. o. b., and could not take less this year. Newman holds his at 10 cts. in barrels, and mine is worth one cent more in cans. Heddon gets 10 cts. in cans, f. o. b. at Dowagiac, and the best I will do is 10 cts., f. o. b. at Glenwood. When you realize and advocate higher prices, you must set an example for others to follow. O. S. COMPTON.

Glenwood, Cass Co., Mich., Aug. 29, 1887.

The above state of affairs may not be general, of course, but I shall be very glad to know that bee-keepers are getting the prices mentioned for their honey once more. It looks as if they might rejoice at the prospect of not only a good demand for comb honey, but for extracted also; and if we keep up the standard of our product I am inclined to think the prices will not go back again where they have been. At present we dare not give any quotations on the prices of honey we have for sale. When we get some we will let you know what we will take for it; but for the present we are sold out, with the exception of the California honey, which we offer at 8 cents.

Later.—Since writing the above I notice that Blake & Ripley, of Boston, quote comb in one-pound sections at 20 and 22 cts. What do you think of that, friends? And, by the way, I wonder if anybody remembers how much abuse I got years ago when I first trotted out my section that held exactly a pound of honey. Look at our market reports now, and see how it has turned out.

SPECIAL NOTICES.

DISCOUNT ON GOODS BOUGHT THIS FALL FOR NEXT SEASON'S USE.

UNTIL further notice we will give a discount of ten per cent on goods strictly for next season's use, except the following: Machinery of all kinds for manufacturing; all tin and glass honey-receptacles; tin plate, and all counter goods. On Simplicity, portico, and chaff hives, we can give only five per cent. The principal goods included under the 10% discount are foundation, frames, sections, zinc, extractors, comb-foundation machines.

A FOUR-COLOR LABEL FOR ONLY 75 CTS. PER THOUSAND.

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

THOSE BEES IN MISSOURI.

As the lot is not yet disposed of (see editorial on page 447, issue for June 1) we will, until further notice, make an additional discount, besides that mentioned on page 520, of 10 per cent. This will make a full-sized colony only \$4.05, and a two-frame nucleus \$1.62. If anybody wants bees at this time of year, they surely can make it pay to take them at these figures. It is true, you are to take the risk of getting them through the winter; but for several

years now there has been comparatively little trouble in wintering; and in the South there is no trouble at all, providing you have sufficient stores.

NEXT SEASON'S SUPPLY OF SECTIONS.

We wish to say to dealers who are in the habit of supplying their community with sections, and who do not make them, that we shall be glad to hear from you, stating about how many you will probably need. In order to keep our factory running through the fall, and also to avoid such a rush in the spring, we will offer, to dealers, prices on sections, from now till January, never before mentioned. We already have in stock over half a million $4\frac{1}{4} \times 4\frac{1}{4}$ sections, of different widths. If you can not buy your supply six months ahead, perhaps we can contract with you on satisfactory terms. We invite correspondence, and ask you to state, as nearly as you can, how many you will be likely to need.

KIND WORDS FROM OUR CUSTOMERS

You may be pleased to hear that, with your hives, I have taken the silver medal at the Sydney show.

F. A. HUDSON.

Bathurst, N. S. Wales, Aus., June 14, 1887.

OUR TEN-CENT BALLOONS.

The balloons came all right. I have sent one up 9 times, and still have it as good as new.

Munnsville, N. Y., July 1, 1887. F. D. WOOLVER.

I am glad to see once more in GLEANINGS something on market gardening. I renewed my subscription on purpose to get those articles, and I was much disappointed when they stopped.

W. G. BRAINARD.

Gouverneur, N. Y., Aug. 5, 1887.

I received my bees on the 22d all right, only about 100 dead ones in the box. I turned them loose on 2 frames of black brood, and they went right to work, and to-day I see they have stored about 10 lbs. of honey, and I see that the queen has laid quite a number of eggs. I am well pleased with my bees.

SINGLETON SPENCER.

Ladew, Wash. Ter., Aug. 1, 1887.

I feel that I owe all of my success in bee culture to you and your journal. Long may you live to enjoy the benefits of your hard labor. I have taken your journal for several years, and can truly say that I enjoy every article in it, and especially Our Homes. As I am a farmer, I like your market-garden reports.

S. A. MARKHAM.

Ellington, N. Y., July 13, 1887.

I am highly pleased with the smoker, and, in fact, I never have had a poor thing from you. The Novice honey-extractor I bought of you gives entire satisfaction. It simply can't be beat for the cost of the same. The honey-pails are fine, and I don't see how they can be made for the price, and material furnished.

B. E. RICE.

Boscobel, Wis., July 18, 1887.

GLEANINGS AND HER CONTRIBUTORS.

The wrapper of GLEANINGS informed me that my year's subscription has expired. Please find one dollar inclosed for another year. Through the influence of a kind friend I began taking it, and now I look forward to the advent of each number with pleasure and anticipation. Why, I would not think of getting along without hearing from those numerous acquaintances whose faces I have never seen. Their thoughts are often very inspiring. Our Homes always contains a lesson for me. The Tobacco Column is especially interesting too. It just makes me glad that so many are finally influenced to quit, and sometimes I am tempted to write those conquering heroes a letter of congratulation upon their victory, for I do want to lend my voice and vote to help in this great cause. P. Benson is a genius. What would the "sightific" world do without him?

Mr. Doolittle's article on swarming, for beginners, I read more than once, so as to know when to expect second swarms, etc. You see I had confidence to believe that it was so, if it wasn't so, if Mr. Doolittle said so, and what do you think? my bees didn't

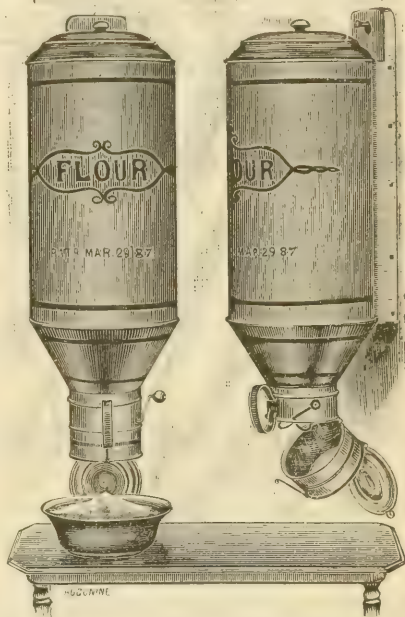
use his reckoning hardly a bit only about one time out of a dozen! However, I am sure my bees beg Mr. D.'s pardon for their disrespectful conduct.

Shoreham, Vt.

MISS MARCIA A. DOUGLAS.

Tyler's Flour - Receptacle.

A Much-Needed Household Convenience.



In looking about for improved appliances to make our homes convenient and attractive in every way possible, we found the above implement. As soon as we saw it we felt that it was something every housewife would want. It is a can, made to hold just one sack of 49 lbs. of flour, is neatly japanned, striped and lettered, as shown above. But the most neat and convenient thing about it is the flour-sifter in the bottom. The can is hung upon a stout nail on the wall just above your table. Instead of reaching down into the ordinary flour-box or can to scoop it out, getting it on to your sleeve, you simply open the door at the bottom, place your pan underneath, and turn the crank of the sifter till you get all you want. Your flour is then all ready to use, while in the old way it must be sifted after you get it out of the box or whatever is used. You will notice, also, from the cut on the right, that the sifter is easily cleaned of all accumulations without emptying the can. The most approved flour-boxes will cost more to rig them up than this device, and you will readily see they are not so handy when done. We can furnish these flour-cans, crated ready to ship, for \$2.75 each, or we will send a crate of six, direct from the factory at Rome, N. Y., for \$12.00. They are so light that if one is ordered alone it will probably go cheaper by express.

A. I. ROOT, Medina, O.

I SHALL greatly reduce the number of my colonies; and as I hate to kill valuable queens, I offer them at 65 cents for tested Italians, and 35 cts. for hybrid queens. None older than 2 years. Shipped by return mail. T. H. KLOEF.

17d

Terre Haute, Vigo Co., Ind.

DADANT'S FOUNDATION FACTORY, WHOLE SALE AND RETAIL. See advertisement in another column. 3btfd

FOR SALE OR TRADE.

Ten full colonies of hybrid bees on 8 Simplicity metal-cornered reversible frames. Shipping-cases will answer for temporary hives. Bees are in fine condition. *Five dollars* a colony on board cars. Will exchange for a Barnes foot-power saw with attachments.

J. P. McELKATH,
17-18d Asbury, Warren Co., N. J.

LOOK HERE!

A complete hive for comb honey, for only \$1.50. Planer-sawed, V-groove sections a specialty. Price list free.

J. M. KINZIE & CO.,
17fdb Rochester, Oakland Co., Mich.

BEES.

ITALIANS, Very Fine and Gentle, Good L. Hive, Combs built on fdn., wired. Must sell.

G. W. BRODBECK,
17d 50 Fletcher Av., Indianapolis, Ind.

ASH KEGS FOR EXTRACTED HONEY.

16-17d M. Isbell, Norwich, N. Y.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading beekeepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent by mail for 10 cents. Address

67fdb HENRY ALLEY, Wenham, Mass.

CARNIOLANS.

GENTLEST, BEST HONEY-GATHERERS, AND THE QUEENS THE MOST PROLIFIC OF ANY KNOWN RACE.

Untested queens, each.....\$1 00
Send postal for descriptive circular. Address

S. W. MORRISON, M. D.,
Chester Co., Oxford, Pa.

Mention this paper.

A Barometer for Gardeners and Farmers.

We have finally succeeded in getting a wonderfully pretty little aneroid barometer that we can sell as low as \$2.50. One of them has been carefully tested by the side of our mercurial barometer, and it follows the rising and falling of the mercury with wonderful accuracy. It seems to me that these little instruments ought to pay for themselves over and over again for any farmer or gardener, or any person who is dependent on the vicissitudes of the weather. The instrument much resembles a pretty little clock, and it may be sent by mail safely for 10 cts. extra for postage. You will remember that my method of using *any* barometer is to pay little or no attention to where the indicator or mercury stands. When you wish to know what the weather will be, tap the instrument with the end of your finger. If the indicator (or mercury) falls, there is a prospect of rain; if it rises, you are pretty safe in deciding there will be no rain very soon. If a considerable storm is approaching, the mercury will keep falling for some hours, and it will drop a little every time you touch it, even though you tap it as often as once an hour. When it keeps dropping for several hours, look out for a storm or a big wind. If it keeps rising for several hours, go on with your work and you will very seldom be misled.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads. intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14fdb A. H. DUFF, Creighton, O.

WANTED.—Honey in exchange for the following: White Hol. Turkeys. S. S. Hamburgs, printing outfit, accordion, magic lantern, microscope, books, curiosities, and mineral cabinet. Address JNO. C. CAPEHART, Spring Hill, Kan. Co., W. Va.

WANTED.—To exchange Alderbrook Poultry Farm, of 12 acres, buildings all new, for personal property or offers. 17-18d D. E. DARROW, West Eaton, N. Y.

WANTED.—To exchange small-fruit plants, strawberries, raspberries, and blackberries, for full colonies of bees. Circulars free.

17d P. D. MILLER, Grapeville, Westm'd Co., Pa.

WANTED.—To sell, or exchange for aparian supplies or good type-writer, one Model improved printing-press, No. 2, with 7 fonts of type, different kinds, and chase. Whole outfit cost \$65. Correspondence solicited. Address 17-18d J. A. WILSON, Hanover, Mich.

WANTED.—To exchange Simplicity hives and all wood brood-frames, made up or in the flat, for extracted honey. C. P. BISH, 17-18d St. Joe Station, Butler Co., Pa.

WANTED.—To exchange a Given press and dies, L. size, 3 tanks, 1 wax-strainer, ½ doz. dipping-boards, and wrenches. J. SWALLOW, 17d 2816 Mo. Ave., St. Louis, Mo.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I am Italianizing my apiary, and will sell good hybrid queens for 30 cts. apiece, or four to one address, \$1.00. Stamps taken.
WATSON ALLEN, Bernardsville, N. J.

I have some hybrid queens to spare all through September, that I want to replace with tested queens, at 30 cts. each; four for \$1.00, and I guarantee safe arrival.
W. A. SANDERS, Oak Bower, Hart Co., Ga.

I will sell nice hybrid queens, of this year's raising, for 35 cts. each, or four for \$1.00.
GEO. H. DENMAN, Pittsford, Hillsdale Co., Mich.

Ten mismated golden Italian queens by return mail, 30 cts. each; also 20 purely mated Italians, rather dark color, at 50 cts. each. These are one year old, clipped.
L. L. HEARN,
Frenchville, Mercer Co., W. Va.

I have some 25 or 30 hybrid queens, which I will sell at 30 cts. each, or four for \$1.00.
JAS. ERWIN, Christiansburg, Shelby Co., Ky.

Forty untested Italian queens at 50 cts. each.
17-18d M. ISBELL, Norwich, N. Y.

Black queens, 20 cts.; hybrid, 30c; mismated, 35c.
W. G. HAYEN, Pleasant Mound, Bond Co., Ill.

About one-half dozen mismated Italian queens for sale at 30 cts. each.
WM. H. HUSE, Manchester, N. H.

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CONVENTION NOTICES.

The bee-keepers of Connecticut will meet in room 50 of the State-house, Hartford, Sept. 24, at 11 A.M., for the purpose of organizing a State society. All are invited. E. H. COOK.

The fifth annual meeting and basket picnic of the Progressive Bee-keepers' Association will be held on Thursday, Sept. 22, 1887, at Mountain Apiary, the residence of John R. Reed, near Chester X Roads, Georgia Co., O. All interested are cordially invited to attend. A full attendance of the members is desired. MISS DEMA BENNETT, Sec.

The North-American Bee-keepers' Society and the North-western Bee-keepers' Society will meet in joint convention at the Commercial Hotel, corner of Lake and Dearborn Streets, Chicago, on Wednesday, Thursday, and Friday, Nov. 16, 17, and 18, 1887. Arrangements have been made with the hotel, for back room, one bed, two persons, \$1.75 per day, each; front room, \$2.00 per day, each person. This date occurs during the second week of the Fat-Stock Show, when excursion rates will be very low. W. Z. HUTCHINSON.

The Board of Agriculture of Nebraska have set apart ample and suitable space for the display of bees and honey at the State Fair, and now it is to the interest of Nebraska bee-keepers to improve this opportunity and show the people that this is a honey country, and that we need not admit any shipping of honey into our State. Shall we not now awake and meet with our products, the sweetest of the sweets, the pressure of commerce, and thus prove ourselves up with the day? The superintendent of the Apianian Department, Mr. E. W. Whitcomb, of Friend, Neb., would be glad to see you, and also a sample of your products, at the State Fair. A meeting of the State Bee-keepers' Association will also be held on Wednesday and Thursday evenings during the fair, in the Botanical Lecture-room of the State University. This room is on the first floor of the Chemical Building, east of the main building, south entrance. All are invited to attend these meetings. They will be free and interesting. H. N. PATTERSON, Sec.

DADANT'S FOUNDATION FACTORY, WHOLE SALE AND RETAIL. See advertisement in another column. 3btfd

FOLDING BOXES.

Our Cartons for enclosing **Section Honey** are the **best & lowest priced** in the market. Made in one piece. With or without **Tape Handles**. With **Mica Fronts** or without. In the **Flat** or set up. **Printed** or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. **Price List Free.** Samples **5c.** **14 oz. Glass Jars \$5.25** per gross, including Corks & Labels. **1-1/2 & 2 gross in a Case.** Catalogue of Honey Labels free.

A. O. CRAWFORD, B. Weymouth, Mass.

VIRGINIA

Land Agency. Cheap Farms. Lists Free. **GRIFFIN & JERVIS**, Petersburg, Va.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent by mail for 10 cents. Address **HENRY ALLEY**, Wenham, Mass. 6tfd

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN** Before purchasing **SUPPLIES** elsewhere. It contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2tfd **Hartford, Washington Co., Wis.**

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

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WANTED.—To exchange Simplicity hives and all-wood brood-frames, made up or in the flat, for extracted honey. C. P. BISH, 17-18d **St. Joe Station, Butler Co., Pa.**

WANTED.—Honey, beeswax, sections, bicycle, firearms, Gray's anatomy, standard poets, and offers, for No. 1 scroll-saw (Barnes), B. com. scroll and c. saw, flute, bees, carp, tools, printing-press, power-saw, set cyclopedia, 2 vols. N. A. Review. **J. C. MILLMAN**, Elk Grove, Wis.

WANTED.—To exchange bee-keepers' supplies for alsike-clover seed, buckwheat, any kind, or a lawn-mower, new. 18tfd **BRIGHT BROS.**, Mazepa, Minn.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Forty untested Italian queens at 50 cts. each. 17-18d **M. ISBELL**, Norwich, N. Y.

Pure Italians, mated, 40 cts. Brown and hybrid, 15 to 40 cts. Stamps taken. **F. C. MORROW**, Wallaceburg, Ark.

I have 7 black and 20 hybrid queens that I will mail at 20 and 25 cts. each, respectively. **W. H. LAWS**, Lavaca, Sebastian Co., Ark.

I have five hybrid queens of this season's raising, which I will mail at 35 cents each. **J. H. JOHNSON**, Middaugh, Northampton Co., Pa.

I have a number of choice mated Italian queens at 30 cents each. **OLIVER FOSTER**, Mt. Vernon, Linn Co., Iowa.



Vol. XV.

SEPT. 15, 1887.

No. 18.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75, 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

CROSS BEES AND FOUL BROOD.

SOME VALUABLE SUGGESTIONS FROM FRIEND DOOLITTLE.

ON page 624 of the present volume of GLEANINGS, Mr. Vansyoc wants a recipe for stopping bees from stinging, and friend Root seems to take it for granted that Bro. V.'s bees have had access to stolen sweets, or, in other words, they "got to robbing." This may have been the case, yet there is nothing in the communication of Mr. V. to show that such was the case, except that his bees were cross. I am well aware that robbing will make bees cross, but I am also aware that improper handling will make them equally so; and the bad effects from such handling last much longer along the stinging line than it does when produced by robbing. A bee, made cross from bad handling, will follow a person around the apiary in an angry tone for days and even weeks, stinging whenever a chance is offered; while the crossness coming from robbing ceases with the end of such thieving. I have known bees made so cross by careless handling in taking off honey, on a dark cloudy day in the middle of the honey-harvest, when there was no disposition to rob, that not a person could get out of the door of the house on the side next the bee-yard, for a week after, without getting stung. When once a whole apiary gets thus aroused I know of no way to cure the trouble except to keep away from them for a week or two, till they get over what appears to them to be an unpardonable insult. No person should go through an experience like the above without learning wisdom, and not handle bees roughly or at all at such times. If absolutely necessary to handle bees at such times, they should be thoroughly subdued before opening the hive.

When such a course is pursued, no general uprising will occur.

Above I spoke of a bee thoroughly angry following a person about the apiary for days, intent on stinging. Now, in the rapid opening of hives necessary in a large apiary, a bee or two from certain hives will become angry; and if you continue to work right on, as we must, these will aggregate to quite a number during the day, so that very likely a person visiting the apiary would say, "How cross your bees are!" when in reality there would not be more than ten or fifteen bees in the whole yard but that were the most quiet kind; but these ten or fifteen bees, being ever on the alert, give a bad coloring to the whole. For years I was bothered with cross bees greeting me every time I went into the apiary; and being desirous to have it otherwise I finally fell to studying on the matter, the result of which was the making of a wooden paddle about a foot long and five inches wide at the large end. This paddle I carried along with the tools I used about the apiary; and if a bee became so enraged that it followed me a rod from its hive, keeping up its angry tone, I took up the paddle and killed it by a vigorous blow from the same. Since adopting this plan, some five or six years ago, I, or any of my neighbors or friends, can pass all through and about the apiary without fear of being greeted by cross bees. Some may object to this killing of a few bees, but I find that a bee once thoroughly angry seems to have no idea of honey-gathering afterward, but hangs about the entrance of the hive ever after that, ready to dart out at any object which may come along. Try this plan, friends, and see if you do not agree with me.

FOUL BROOD.

I was very much surprised at the premises taken regarding curing foul brood by the starvation plan.

on page 635. I can see no need of the "intermingling of bees" as there spoken of; and when the Jones plan of starvation is fully carried out, no harm could come, even did the bees intermingle after they had passed through the starvation process. With the late M. Quinby, I claim the starvation which Bro. Jones puts the bees through is not only cruel but useless. That new swarms from foul-broody colonies, hived in an empty hive, never have the disease afterward, proves Quinby correct. That such new swarms, hived on a new stand, do not spread the disease along the intermingling line, points to the conclusion that a driven colony left on its own stand would not. I should sooner think that the colonies on either side of the driven colony had caught the contagion by robbing, than that it came by the intermingling of bees. Robbing on a small scale is carried on in the apiary far more than most people are aware; and if any apiarist will watch closely he will become convinced that there are few days, when honey is not coming in freely, but that a bee-load or two of honey get from one hive to another. That foul brood can be cured by the Quinby or Jones process, I know; for I cured my whole apiary in 1872 and '73; and from what I read on page 635 it must be a quicker, more simple, and more effectual plan than the carbolic-acid plan there delineated. As a rule, when bees do intermingle they don't carry a load of honey out of their own hive into another, so that this could not be the cause of the spreading of foul brood, except in very rare cases. If you accept any other theory of the spreading of foul brood than through the honey—such as, that the disease is in the tissues of the old bees, and in the ovaries of the queen, as put forth by Mr. Cheshire, you put an effectual barrier on the queen-traffic, and an untold catastrophe on bee-keeping throughout the world.

G. M. DOOLITTLE.

Borodino, N. Y., Sept. 7, 1887.

Yes, friend D., we did presuppose that Mr. V.'s bees had got to robbing, although there was nothing in his little note that conveyed this intelligence in so many words. When a beginner reports that his bees are cross, and wants to know what to do, as a general rule we suppose that he has allowed them to get to robbing, and we advise him to immediately take measures to allay the trouble. We are well aware, that rough handling does make bees exceedingly cross, and this may have been the trouble with the bees of Mr. V. As it is, we are glad you have spoken of it. We will put it this way: Bees may be made cross by one or two ways: Namely, robbing and rough handling.

In regard to foul brood, you seem to be somewhat astonished at my statements, made in reference to the starvation plan. You say you see no need of the intermingling of bees when the Jones plan of starvation is *fully* carried out. If you will turn back to pages 630, Aug. 1, 1886, and 482, for 1887, you will see that we do not and have not practiced Mr. Jones's plan of curing foul brood, exactly as described in his book. We caused the bees, to consume all the honey in their sacks, in drawing out full sheets of foundation, after which we feed them. During all this time the bees are allowed their liberty, for we have found it is almost

impossible to shake *all* the bees from the diseased hive into clean hives with frames of foundation. There will be perhaps a hundred in the air; and over and over again have we noticed a large percentage of these bees flying into four or five different hives whose entrances were situated similarly to the parent stand. Perhaps you might say, this could be avoided. Perhaps it might be; but we have never been spry enough to close the hive and get our tools and every thing away so that the old hive might look natural before the bees in the air decided to make for home. You see, if we close the hive up immediately these flying bees would most surely enter the neighboring hives. More than this, I can not help thinking that there is considerable intermingling when the bees are quietly domiciled in their new quarters. Let us give a little fact in point: A year or so ago, you will remember, we had two Carniolan swarms in our apiary. At this time it was a most noticeable fact, that stray Carniolans were in not a few of the neighboring hives, especially in those whose entrances were in the same direction. We likewise found Italians among the Carniolans; therefore I can not but think from this and other facts which have come under my observation, that bees do intermingle to quite a large extent; and while I am ready to admit, that this quiet stealing, or "robbing on a small scale," as you term it, may be one of the ways by which the contagion may be spread, yet I think the intermingling does the greater part of the mischief.

Speaking of the starvation plan, you say, it seems to be a quicker, more simple, and more effectual plan, than the carbolic-acid plan which I described on page 635. If you turn back to this page you will see that I did not recommend the carbolic-acid treatment as being the best. I intended to give only my present knowledge of it. I am not sure, even now, that the treatment by acids is the best method of curing foul brood; but the fact remains, that ever since we began using carbolic-acid we have checked the spread of the disease in new colonies, and so confined the disease to only those colonies under treatment. On the other hand, when we were using the modification of the Jones plan, the disease spread all over the apiary, where colonies had, but a week or two before, been perfectly healthy, never having had a trace of the disease.

To your last sentence I must take a little exception. While it is possible that foul brood may be spread by means of the bees or queens, aside from the agency of honey, yet I do not think that even then we need to be very greatly alarmed. Granting that it is *possible* for queens to give the disease to healthy colonies, I can hardly see that this fact should "put an effectual barrier on the queen-traffic, and an untold catastrophe on bee-keeping throughout the world." In reference to this point I can do no better than to refer you to page 291 of the *A. B. J.* for 1885. Brother Newman there editorially gives these pertinent remarks:

Wouldn't it be as consistent to require the suspension of all business in the United States of America, because, forsooth, the cholera is expected here this

summer (aye, it is reported to be already here in some isolated cases), and the circulating medium—money, with which business is transacted, consisting of gold, silver, nickel, copper, and, worst of all, paper—is charged with spreading contagious diseases?

Many of the thousands of filthy "greenbacks" now circulating over the country have been in the possession of diseased persons, and, of course, when they pass into the hands and pockets of those in good health, they endanger the lives of all into whose hands they pass. Still we must live—we must do business—we must have and use money. In other words, we are *compelled to take the risk daily*, and yet but few, comparatively, ever catch the contagion.

In addition to Ernest's remarks, lest there be some misapprehension I will say that we have sent neither bees, queens, nor frames of brood from our own apiary since foul brood appeared. Neighbor H. has the imported queens, and does all the queen-rearing.—I want to add a little in regard to the paddle for killing bees. I have for years been in the habit of doing the same thing whenever I had reason to believe that four or five cross bees were making more trouble than their lives were worth; but I do not like a paddle so broad as the one friend Doolittle mentions. It catches air too much, and not only blows the bee away without hurting him, but the resistance of the air makes it hard to strike quickly. A strip of wood 18 inches long, $\frac{1}{2}$ inch thick, and 2 inches wide, suits me better, and I believe the bottom-bar of a Langstroth frame is still better, after you have had sufficient practice to strike the bee on the wing, and hit him the first clip. At our county fair, which is just over, we had a good deal of practice in this line. The bees came around our honey-stand; but by knocking them down with such a stick, just as fast as they appeared, they soon stopped coming. At such places, however, you want to step on the bee and kill him at once after you have knocked him down, or he may crawl up somebody's clothing and make it unpleasant for the honey-man. Commence when the bee first makes his appearance around the honey, and follow him up till you kill him, and you are master of the situation. The same is true in regard to the candy and lemonade stands. Let a hundred or a thousand bees, however, get to carrying off sweets, and there is a good chance for a lawsuit or something worse.

makes so much juice in every thing. This juice does not jell for me as sugar and fruit-juices do, but is always runny. I like honey for medicine better than for fruits. We had a hired hand one year who had sore eyes, and nothing seemed to help him. I told him that I had read that honey was good for sore eyes. I dropped a drop in each of his eyes every morning, noon, and night, and they were well in a week. It hurts, though. Honey is good for deafness. A good many people go through life with dull hearing powers, on account of hardened wax in the ear. I think honey loosens this wax. I know all that I have tried it on get better. One or two drops, dropped into the ear at one time, is sufficient. Won't Mrs. L. Harrison try this and report?

I also believe that honey and nothing else will cure any common sore throat. Take a teaspoonful every half-hour.

Mr. Root asks if such a bad state of affairs could happen at a camp-meeting. You make me smile. Why, my dear friend, I saw just the same folks at that camp-meeting that I saw at the various Sunday-school conventions that I have been attending all summer. I saw the same faces at the Fourth-of-July celebration, and at the temperance convention last Sunday, only at the camp-meeting there were more of them. The day was broiling hot, and the water-supply insufficient. The people were not so much to blame, when we consider that no refreshments of any kind were to be sold on the grounds. It would seem that, if it were ungodly to sell lemonade and watermelons on Sunday, it would have been only common every-day Christianity to give everybody all the cold water they wanted. Now, if I had been running that camp-meeting I'd have let all the watermelons come in—watermelons are so good and cooling, and I'd have had great tanks of cold water sitting all about, with half a dozen tin cups chained to each one; then I would have used all the rest of my strength in trying to prevent smoking on the grounds. The tents, the tabernacle, and three or four acres of horses and buggies were on top of a rising ground, the road leading from the bottom lands. The road that all the people came in by was new and narrow, crooked, and rough, with saplings and hazel-brush growing thickly at the sides. The young trees all over the ground, excepting just around the tents, were so close together that it was difficult to drive among them. The ground was covered with old dry leaves; the weeds and grass were dead, and as dry as tinder. It needed only a young man with a cigar and a match to have started a conflagration that would have burned up hundreds of horses before they could have been gotten out. Perhaps you will say that the young man and the cigar and the match were not present. He was there; he lighted the match, held it to his cigar, then threw it down among the leaves, and in a moment there was a blaze. They ran with blankets and quilts and jugs of water, and trampled and smothered and drowned it out before any damage was done except to the blankets and quilts. But this happened down on the creek, where there was plenty of room, and while people were eating dinner, before the water gave out. Yes, if it had been my camp-meeting I'd have gone up into the tabernacle and selected a hundred of the strongest of the brothers, and armed each of them with a club, and stationed them all about the grounds, with orders to arrest every man with a pipe or a cigar, and march them off the grounds.

SWEETENING FRUITS WITH HONEY.

MRS. CHADDOCK GIVES HER EXPERIENCE.

I HAVE read Sophia A. Bradley's letter from Australia, and in reply I would say that I have tried honey for preserving many kinds of fruits. About fifteen years ago, when I had my first crop of honey, I could not sell it, so I used it for canning and preserving fruits. I put up peaches and blackberries, all sweetened with honey. I made raspberry and blackberry jams, and peach-butter. We liked the fruit *almost* as well as that sweetened with sugar; but honey is troublesome to use, because it burns so easily. I cook all my fruit in milk-crocks; but in using honey to sweeten with I had to put the crocks in water in skillets, with nails or pebbles underneath; and it took longer, and was more trouble, than the old way. Then it

You ask if I have omitted to mention the folks who stood back and gave the others a chance. Well, I did not notice any one particularly who was standing back to set a good example. There might have been many; but where there is such a crowd, with people coming and going, passing and repassing, and raising a cloud of dust all the time that drifted in on the speakers and hearers, we can't see very well, and a man standing alone would hardly be noticed.

I think your wife did right to remonstrate with you about the refreshments at the camp-meeting. It seems to me when you and your wife have a difference of opinion, she is generally in the right. You say I did not say any thing about the sermon. The meeting in the afternoon was a children's meeting, lead by two women. They gave very good advice about raising children, but they lay too much stress against *fashion*. I claim that there are vices a thousand times more injurious to children's bodies and souls than a few ribbons and ruffles can possibly be. We heard afterward that they had a rousing good sermon at night, but we did not stay to hear it. We went home to get a drink!

MAHALA B. CHADDOCK.

Vermont, Ill., Sept. 6, 1887.

I believe you are right about using honey for preserves, Mrs. C.; in fact, I believe I have mentioned the same thing before. There is too much water in it to take the place of sugar, and this seems to be somewhat the case with even very dry candied honey.—Now, in regard to the camp-meeting. I shall have to think, my good friend, that you have not the faculty of noticing the good qualities of the great world at large as much as you do the weaknesses and the comicalities, if that is the word, or else I shall have to conclude that our real good faithful Christians do not go to camp-meeting very often. I do not believe in any thing on Sunday that savors of money-making, or that gets people interested in any kind of trade or traffic. Think of some good Christian brother saying that he did splendidly with a load of watermelons which he took to camp-meeting last Sunday! I do think something ought to be done with that young man with the cigar; but I believe I would rather risk having the good brothers armed with Christ's words than with the clubs you mention.—I believe as you do, that we should be careful how we make a fuss about ribbons and ruffles. The excessive use of them may be bad, but it is not to be compared to late hours and many other things.

OUR P. BENSON LETTER.

PRIZE LIST & CATTLELOG OF P. BENSON A. B. S.

IN order to save so menney inkuiries I have kindly gave mi consent to publish a list of hives & uther things whitch mi numerus admirers will be glad to see. Them whitch cums on a wheelbarro to get things will please hitch their wheelbarro where it will not upset & bark people's shins.

The quality of my goods is in all cases as lo as consistent with the price. Terms, invariable in ad-

vance. Drafts, munny orders or postidge stamps. Five per sent off for cash.

Hexagony Hive complete - - - - - \$5.00.

This hive gets 6 times the hunny & has took 1st premyem wharever eggzibitted. I hev skewered letters pattent on to this hive.

Material for the same flattened - - - - - \$4.75.

As this hive gits 6 times the hunney it makes it less than \$1.00 a hive.

Pattent Youreeky Feeder, - - - - - 10 cts.

The cheepest feeder noan.

Rite to use each feeder, - - - - - \$1 00



AFTER.

Abuv shows the effex of yusin the Youreeky feeder.

P. Benson's electrick loshen 50 cents a vile.

This sellybrated loshen is fed to bees to increase egg produxyen. Also to hens, polety & silkwurms.

P. Brazillyon bee sting preventative \$1.25 a bottle.

This indispensable adjunk of the aperry consists of equal parts opium, lodnum & parrygorrick, combined by a seacret prossess noan oonly to me. If enny wun takes 10 table spoonfools before breckfast, not a bee will sting you that day.

P. Benson's exsellsir moth miller trap - - - \$ 50.

This youneak device fit on the neck of a bottle fool of sweetened woter & is then hung in the aperry. It will attrack moth millers whitch kant git out.

Hunny plants and seeds of every descripshen. Prises on applekashen.

Beleavin that artafishell pastyourage is the she tanker of suckcess in bee keepin, I hev devoated a feelled of 10 achers to the excloosiv produckshen of hunny plants & seeds so that my customers ken rely on a pewer artickel.

P. S. It will be purceved that this is the 1st 1/2 of my cattellog. The last 1/2 (half) was printed two (2) weeks ago. Sum pceple is so shiffless thay never finish up ennything thay begin. Ime not that sort, so I was tound ide hev this cattellog finished if I never begun it. Orders is cummin in in a noomerous manner.

BEING IMPOSED UPON.

A GOOD-NATURED COMPLAINT.

ISEE by GLEANINGS how many people you let impose upon you, and so I am going to try it a little. I bought a swarm of bees last spring; and, as you know, this is a very poor year for a beginner. I have so far paid out \$15.00 for them, and shall get little return this season. Now, I want your A B C book very much, but haven't the dollar to pay for it, and I am going to tell you the reasons why you may send it to me for nothing, if you want to:

1. Because you let other people impose upon you, and I don't see why I can't.

2. I take GLEANINGS, and hope to right along.

3. I sent to you for half a bushel of alsike seed

last spring, and ordered it to come by freight, with three weeks for it to come in before we needed it, and you sent it by express, which cost me 75 cents; and when we got it from the express office there was a hole torn in the sack. You could press a good-sized egg through it. I don't think there was much seed lost, but it was a bother, and I want your A B C book so bad. If you do not want to send it, please don't. I shall not be at all mad. I have made out as bad a case as I can, only to tell you how badly I got stung yesterday.

MRS. CHAS. PENNINGTON.

Cottage Grove, Minn., Aug. 11, 1887.

My good friend, if people are imposing upon me there is one pleasant thing about it—I don't know it; and, you know, "where ignorance is bliss, 'tis folly to be wise." May be I do sometimes do a little *more* than my part in trying to have things pleasant and satisfactory; but what harm does it do, when I have all I need, and more too, of all that the world can furnish? May be it is true, that my wants are not very great; and if this is true, I am glad again. Your first and second reasons do not count very much for a smoker; but if our clerks disobeyed orders, as per your No. 3, I think we had better send you the book and call it square. If it is more than you ought to have under the circumstances, why, just lend it to your neighbors, and do good with it, and that will make it all right, so far as I am concerned.

THAT BEFORE-DINNER NAP.

ALSO SOME IMPORTANT SUGGESTIONS IN REGARD TO THE USE OF SLATTED HONEY-BOARDS.

FRIEND ROOT:—I want to fight some more about the nap before dinner, and I shall be heartily glad if you whip. I consider it a matter of exceeding importance that we should understand this matter thoroughly, and know just what ought to be done. We are agreed that the twenty minutes' rest before dinner is desirable, and I have raised the question, "Where is the chance for it?"—a question which you haven't answered. I venture to say that 999 out of every 1000 women in the GLEANINGS constituency will say the thing can't be done. Of course, I mean where the woman has no help, and the thing to be regularly continued. I can think of some meals where it is practicable, as a meal of bread and milk, or of cerealine and milk, or any meal where every thing is cold and no cooking done, and perhaps it would be better for all if there were more such meals. But in most cases there is a cooked dinner. Suppose it is a plain dinner of beefsteak and potatoes, plain boiled. "Just before dinner time," when the steak is done and the potatoes boiled, let the cook lie down for twenty minutes, and in what shape will the dinner be?

Now, Mr. Root, you didn't ask your wife about it, did you? I have great respect for her opinions; and if she agrees with you I shall say the thing is feasible, and try my best to put it in practice. The after-dinner rest I frequently insist upon, sometimes "by force and arms." Our good friend Mrs. Harrison (p. 669) takes an hour's rest before eating her

dinner—does she cook the dinner before that hour's rest? I suggested to my wife that it would be the right thing for her to rest before dinner, and she replied, "I guess you'd get some funny meals." Then with a good-natured laugh she added, "There are some things men know precious little about."

IS THE SLATTED HONEY-BOARD DESIRABLE?

Referring to page 656, I have given a pretty fair trial to the plan of using supers without slatted honey-boards. I can hardly believe that I got any more honey than with. By the use of a bait section, which I should use in any case, I have no trouble about getting the bees to occupy the sections promptly, as soon as they have any thing to store in them. Until this year I did not suppose they would occupy them when honey was not yielding; but during the terrible drought this summer I found supers filled with bees, although they were not storing an ounce, and all the sections except one had nothing in them except empty foundation. Between the top-bars of the brood-frames and what is placed immediately over, I have always found brace-combs and honey, or else bee-glue, if honey is stored above. It is possible that just such a space might be made that neither glue nor comb would be placed in it, but in actual practice I have never reached it. (By the way, if I had not so many hives already on hand I would give a trial to the plan of J. B. Hall, of Woodstock, Canada. He showed me frames that he uses, with top-bars an inch thick; and, if I am not mistaken, he said no brace-combs were built over such top-bars.) Now, there is waste in having the space filled over the top bars; and if a honey-board is used, this waste occurs once in a season; whereas if no honey-board is used, and three supers are put on in a season, putting each super, as is the practice, next the brood-nest, there will be three times as much waste. So if the honey-board is no hindrance to the bees going up (as I think it is not, with proper management), it looks as if more honey could be obtained with than without honey-boards. I dislike the job of cleaning up these honey-boards when they are taken off at the close of the season. It is a sticky, dauby job, if at once cleaned off; but as there is no hurry about it I put a lot of them over a hive, confined so no robbers can get at them; and after the bees have cleaned off all honey I clean off the wax at my leisure. Bad as this is, it is several times worse if no honey-board is used. Instead of one job for the season, each super, when changed from its place immediately over the frames, must be cleaned off; and this with the dripping honey in the way, right in the busy time when every minute counts.

HONEY SEASON OF 1887.

The worst I ever knew. One word tells the whole story—drought. My colonies have been strong all through the summer, and I have taken in all something like 300 pounds of section honey, mostly from the Wilson apiary, a good share of this being a single section (the bait) in a super. In some cases, if not all, the bees filled this one section of empty comb when there was abundance of empty room in the brood-combs. A curious feature has been the absence of trouble from robbers throughout the entire season, possibly because they have been handled so little. At this date, Sept. 8, the bees seem to be working quite busily, at least in the forenoon, but no gain of honey appears in the brood-combs. They are, however, full of brood,

which must take no little honey; and on looking through a hive, the full combs of brood look as if the bees thought it were spring. There are other appearances of spring since the rains, such as the reviving of the brown pastures, and the dandelions are coming out in bloom. The present outlook is, that I shall buy about two tons of sugar this month for my bees.

C. C. MILLER.

Marengo, Ill.

Friend M., Mrs. Root and I have a standing disagreement about that before-dinner nap. There is not any disagreement about *my* nap before dinner at all, for I always find a place fixed, a pillow ready, doors closed, and children chased off; and if I don't get to sleep awful quick, I notice she stands sentinel all around that part of the house. There is not any question but that this is the only thing for *me*; but although her health is not much better than mine, especially when she works more than she ought to, she utterly repudiates the idea of a nap before dinner, for herself. She says by actions, that it is quite important that *my* life should be prolonged, but that in her case it is not very much matter. Now, that stirs me up every time I think of it, and I am disappointed in you, friend M., to think that you made such a feeble fight for the queens of our homes, as Prof. Cook calls them. What shall we do? Why, have one of the grown-up daughters bring things to dinner smoking hot, or else get some relative, whose health does not need this nap; or, if you can not do that, get some good sensible woman, and pay her a good round price for being sensible, that your wife's life may be prolonged. Mrs. Root generally comes out ahead in all disagreements, but I don't believe she will this time.—Thanks for the important points you bring out in regard to the use of the slatted honey-board. I think I shall have to apologize to friend Heddon right here. He tried to make me see this very thing some time ago, and it did get through my understanding exactly.

BEST HONEY FOR WINTERING.

"BUG-JUICE" A WINTER FEED.

ON page 615, Aug. GLEANINGS, O. O. Poppleton gives his experience and conclusions on the best honey for wintering; and as your foot-notes call for others on the same I will give mine, which in some respects is right the reverse of friend P.'s. He says, that "the longer and more abundant the flow of honey, the better the quality." In 1878 we had the most prolific growth of white clover that I ever saw. It was fairly a burden all over the ground, and every head was brimful of nectar, and it held in bloom for fully three months, and of course the hives were full of it for winter stores; but, alas! it proved the worst that could be, for nearly every bee died the following winter. It was my first winter in trying to keep a large quantity of bees, and so my first loss. I noticed that the honey that year was almost as clear as water, and almost as thin too; even that which was fully ripened and capped by the bees would flow like water, almost, when a comb was broken. Ever since then I have found that, whenever clover honey comes in rather slowly it is always

very thick and heavy, and of a golden tinge; but when it comes in faster it is more clear, and thinner.

Now, to sum up my conclusions of ten years' experience, I will say that I do not care from what source the bees get their honey for winter use, nor how early or late in the season; so long as it is "thick and well ripened" I am fully convinced that it is all right for them; and I have further concluded that it has not been the "honey," but something else that has been the cause of our past great losses in wintering.

I am now going to tell you something that will not be believed by many who read it. I should have written it long ago, but I concluded that it would not be believed; nevertheless, I tried it and I know it. It will be remembered, that a few years ago there was a general prolific flow of honey-dew, or "bug-juice." Well, I got my share of it, and but very little of any other honey, and a great deal was said against leaving it in the combs for winter stores. The editor of the *A. B. J.* was particularly emphatic against it; but as I had nothing else for them I left it in, and my bees nearly all died with the dysentery. Two years later I had quite a quantity of this same dark strong honey-dew honey that I had extracted and kept over, as it was not fit to sell, and I could not eat it myself. I fed it to half a dozen or more light stocks during the winter, by putting the candied honey on the frames right over the cluster. I have written up this way of wintering several times before. They had nothing but dry combs when cold weather began, and I could never ask for bees to winter nicer. They were dry and healthy all the time, and their only food the whole winter was the "bug-juice." I will finish by repeating that I don't care what their stores are, so long as it is not thin and watery, and I can have other conditions to suit me. A. A. FRADENBURG.

Port Washington, O., Aug. 29, 1887.

Friend F., by reference to our back numbers you will find at least one other experiment in this line. A Mr. Pierson, of Ghent, Summit Co., O., lost his bees terribly by spring dwindling. Several were at this time asking if we would advise them to use combs of sealed stores that came from hives where the bees died. I believe our veterans, including the editors of the bee-journals, most of them, advised against using these stores that seemed to be so disastrous during at least one winter. Friend Pierson said, however, he was going to try it. He accordingly prepared quite a number of colonies with combs of sealed stores taken from hives where the bees had died so badly. Now, although these bees had nothing else whatever, every colony wintered splendidly. This experiment seemed to indicate that it was not the quality of stores that killed the bees, and I am inclined to think yet that a good deal of these disastrous losses were in consequence of a sort of distemper or contagion that got among the bees and swept off whole apiaries. May be proper care and protection will do very much to enable the bees to withstand the distemper. I should be very glad indeed to think it is the result of skill and experience, that enables us to winter lately without losses when we had such terrible disaster, winter after winter, ten or twelve years ago.

A BRIDGE FOR CLEANING SECTIONS.

A DESCRIPTION.

AT the convention at Albany last winter I made mention of a bridge I invented for cleaning propolis from honey-sections. If I am not mistaken you said you would make mention of it through GLEANINGS. As the time for crating honey is near at hand, I am quite sure the bee-fraternity, if they once use one, would consider it indispensable: for myself, I would not do without mine for ten dollars. It is made as follows:

Take a piece of heavy tinned wire cloth. It must be heavy wire, so as not to bend down when the sections of honey are put on it. Cut it about 12 or 13 inches square; turn every edge at right angles, $\frac{1}{2}$ inch. Make a frame that will fit nicely inside of the folded edges, and tack fast. Get out for this frame 4 strips, $\frac{1}{4}$ x 1 inch, or about. This bridge is then completed. Lay it on a table, or whatever you wish to clean your sections on, and go to work. I think you will exclaim "Eureka!" The propolis goes through the meshes of the wire, as do also the drips of honey from the unsealed cells around the edges, and does not daub and muss up the sections. It does away with the bother of brushing away the dirt, and wiping up drips of honey. When the refuse accumulates under the bridge, raise it up and clear it, and proceed again.

The honey season here has been a very unsatisfactory one. The yield is about half a crop. White clover yielded very little. Basswood was in full bloom, but yielded sparingly. Bees worked well on sweet clover until the excessive rains set in in July; since then it has been too wet. They have worked some on buckwheat, but now we are having a flood of rain, and storing from that source is at an end; and as buckwheat is the last source from which bees store surplus, we shall have to be contented with half a crop. G. J. FLANSBURG.

So. Bethlehem, N. Y., Aug. 23, 1887.

Friend F., since you mention it I remember quite well your little device, and I thank you for calling my attention to it again. Please excuse my carelessness. The simple idea of itself, of placing your work on a strip of wire cloth, properly supported, is one for which we owe you a vote of thanks.

REPORT FROM E. FRANCE & SON.

CONTINUED FROM PAGE 655, LAST ISSUE.

HOW about this year? We did not mind the loss of the 97 colonies that died, for we still had fifteen more colonies than we had a year ago; and by the time white clover should have blossomed we had all our bees strong and in good condition, ready for the harvest—which did not come. The dry weather last year killed out the clover; so when the time came this year for it to blossom I discovered there was none to blossom, except on low ground. The drought of this year drove the stock on to the low ground to get a living. They kept the clover cropped so close that the blossoms were picked off before they had time to open. As a consequence, our bees never got a taste of clover honey. We have but very few fruit-trees here, but we had a good crop of dandelion that helped a little. Our bees had plenty of last year's honey and honey-dew to work

on in their hives, and they used it to raise brood. There was no honey coming in, so the queens had full swing and filled all the empty combs with eggs. These came right on, and were soon bees.

There were a good many young queens of last year's hatching which were not clipped. We were very anxious to clip them, as the bees were getting very strong, and would be very likely to swarm. Those unclipped queens would be sure to go to the woods with their swarms. We could not open them, as there was no honey coming in, without starting robbers to work. We usually clip queens and start a few new colonies when fruit-blossoms and dandelions are out; but we could not do it this year. I managed to work in the home yard, some evenings; then we (in all, four men) went to one of the other yards and worked each of us two colonies and then had to quit, as we could not work any more. Word began to come in from all the yards that the bees were swarming and going off. We never had such a time before.

FRANCE'S BEE-TENT.

We started for home, determined to make a tent. I told my son to build a tent while on the road home, and I would do so myself, our two hired boys to do the same thing—that is, build it in our minds. We traveled about a mile as still as a Quaker meeting, and then began to talk a little. We soon all decided it should be eight feet square, to work one of our quadruple hives, with four of us at work. It must be as large at the top as at the bottom, and it must be high enough to stand up in. Having decided on the general plan of it, we made one in detail as follows:

We first got out four legs 7 feet 3 inches high, 2 inches square. Near the bottom end we drove in two staples—one about 8 inches higher than the other. We next had four iron pins made out of half-inch round iron, and about 18 inches long. These we slipped into the staples at the foot of the posts, and drove them into the ground, to hold the foot of the post in place. A head was provided for on top of the irons, by which to pull them out of the ground. We bored a $\frac{3}{8}$ hole down in the upper end of the posts, 6 inches deep. We then got out four straight-grained inch boards, each 2 inches wide, and 7 $\frac{1}{2}$ feet long. These were for the top. One inch from the end of each piece we bored a half-inch hole, and rounded the ends so the square corners would not tear the cloth. For a covering we used cheese-cloth costing 5 cents a yard. This was made into a large sack so as to slip over the frame easily when put together.

The tent is now ready to put up. It takes four men (boys will do) to handle it. Each one takes a post and a top-board, and an 8-inch bolt, $\frac{3}{8}$ of an inch in size. Set up the posts; lay on the top-pieces, and drop the bolt through the two boards at the corner, down into the hole in the top of the posts. Next, drive the iron pins into the ground, and you are ready for the cover, which is then slipped over the frame. Raise up one side and step inside.

We are safe from outside bees; besides, those inside won't be likely to sting, for they soon find out that they are in a trap, and will only try to get out. We found the tent was just the thing. We could work the four colonies that were in the tent. Having finished operations and closed up the hive, each of the four hands takes a post and pulls up the pin. At the words, "All ready!" they all raise up the tent, bodily. The tent is carried and set over an-

other hive. The corners are then set out so as to tighten the cloth. The pins are driven in as before. If there is a strong wind, the tent is stayed with some stout string. We used some of the tarred twine so common in the stores.

With the tent we worked all the bees over, clipped the queens, and made new colonies, filling out the old colonies with combs from the dead ones, as long as we had them. This gave room for the queens to lay more eggs and raise more bees, which they did; but as long as there was no honey coming in they would not build new combs. When our old combs were used up we filled out the old colonies with empty frames with 1½-inch starters of foundation. But until the basswood blossomed they would not build combs. They swarmed; but as the queens were clipped they could not go off. They would go back, and perhaps two or three swarms would come out at the same time, when they would be quite sure to all bunch together on one hive. I think I have found this summer a full barrel of bees hanging on and under one of our large quadruple hives. They were the worst about that soon after the basswood commenced to blossom. At that time we got over them as fast as we could, which was about once a week. We would find from one to two hives in that fix in going about once around. Such a sight, and so many bees, I never saw before. If I could have sold them by the pound I could have made a fortune. I went to work and divided them up into new colonies, making five or six colonies out of the bunch of bees and brood-combs from other hives. The bees appeared to be tired of fooling, and they accepted a home, stayed where I put them, and went to work. When I saw we were not going to get any honey except what we could get from basswood, I decided to make just as few new colonies as possible. But the bees had nothing to do but to raise bees. They had plenty of their old fall honey to feed the young brood. We had a pretty fair run of basswood honey for about 12 days. As soon as the bees got at work on the basswood we started the extractor, and emptied out seven barrels of (about 2500 pounds) the old dark last year's honey-dew. We now wanted the bees to fill up on basswood honey to winter on, but there was too much brood in the combs, so we extracted most of the combs the second time, and get out seven barrels more. This last was basswood honey. We took it out to give room for more, expecting to feed it back. I don't know yet whether it will be wanted for feed or not, as we have not examined lately to see how well they are off for honey.

Now, had I known just how the season would have been I would have had all the combs full of honey at the close of the basswood season. If I had taken all the queens away just before basswood came out, there would not have been any more eggs laid; and what brood they had on hand would have been about all hatched out, and their places in the combs filled with honey. Then they would have been in good shape to winter. As for queens, I would have let them raise a young one while they were filling up, or I could have kept some of the old ones in nuclei to fill vacant places. Then I should have had no trouble about the bees swarming and bunching in.

I don't know just how much our bees have increased, as there are three yards not counted up. The other three yards had 198 colonies in the spring. They have now 249—an increase of 51. I think per-

haps the other three yards have increased about the same, which will just about make up our winter loss. I don't know whether the bees have as much honey now on hand as they had at the close of the basswood flow or not, as I have not looked lately. But, such a call for honey! Orders come with every mail. Last year we had a big crop, and worked hard to get rid of it at low figures; but this year we got none and everybody wants to buy. The dry weather this year, I think, will cut clover crop off for next year. But we are not in Blasted Hopes yet. We have lots of bees, and are going to try hard to winter them. We had a good rain last night for the first time since July 2. E. FRANCE.

Platteville, Wis., Aug. 11, 1887.

May be your plan of a bee-tent might answer the best of any thing that could be devised, for your own use; but I should object to it in our own apiary for several reasons. First, whenever it becomes necessary to remove the tent to another hive you are obliged literally to "pull up stakes;" second, to use it to any advantage it requires four men (or boys) to handle it; third, it would take too long, it seems to me, to put it together ready for use, and slip over it the cheese-cloth sack. While it is a great convenience to have the top as large as the bottom, yet we prefer to have a tent with a gable top, for this reason: The bees inside will keep working toward the central line; and having reached there they will escape through the openings at the top. Different apiarists may have different ideas as to what a tent should be; but here at the Home of the Honey-Bees we prefer to have one weighing not over five pounds—a tent that one man can handle easily—one which can be folded quickly, and opened out just as quickly. I believe it is no more trouble to use our tent over the hives than it is to work the hives without a tent. I believe if I had quadruple hives, as you have, I should make the same kind of a tent that we advertise, but perhaps two or three times as large. However, as I said before, each one has his preferences and his own ideas of convenience.

FLORIDA.

HOW W. S. HART AND HIS NEIGHBORS SUCCEEDED THIS SEASON.

THE honey-season in this part of Florida closed about the last of July, and left us with about one-fifth of a crop, as a rule. My own report is, nine 400-lb. barrels from about 100 colonies. The bees in my immediate neighborhood have not done as well as those a few miles either north or south of here. To the north and on the peninsula, they had a fall flow that we did not get, and that helped to keep the bees there in better shape for the summer flow. To the south, the black mangrove was not hurt as badly as here by the great freeze of 1886, therefore yielded more freely. In fact, bee keepers from that way tell me that the blossoms often hung full of honey from morning until night, and that their bees being in poor shape was the only reason for their not getting a full crop of mangrove honey.

The season of 1886 proving an almost total failure, from the effects of the big freeze early in that year, then all the first part of this season proving equally

poor, many of our apiarists got discouraged, and either gave up the business for the present or else let their bees take care of themselves, to a great extent. My own have been taken care of in a very slipshod manner for the past two seasons, as there was more profit to me in giving my time to my orange-groves. The prospect now is, that next season will give us a full crop again, and I now feel that I can again invite brother bee-keepers to come to this country, with as good a prospect of their being successful in their line here as any where else in the U. S. They must remember, however, that the ordering of the honey crop does not lie with me; and as I am thoroughly human, my judgment may err.

The two who seem to have best success along this river this season are Mrs. Dr. Goodwin, located three miles north, on the peninsula, who took, I am told nine barrels of honey from about 45 colonies; and Mr. Storer, five miles south, on the main land, who took 15 barrels from about 125 colonies. These barrels, I suppose, hold about 400 lbs. each. I have so far received no other reports that compare with these, although there may be others who have done as well, whom I have not heard from. The comb-honey producers have not reported yet. The season has been exceptionally dry through the summer months, but I do not think that its being so shortened the crop to any extent. W. S. HART.

Hawks Park, Fla., Aug. 23, 1887.

CAUSE OF SOUTHERN HONEY GRANULATING.

DOES IT PAY TO KEEP BEES?

MR. G. W. BECKHAM, of South Carolina, asks in GLEANINGS, Aug. 15, p. 626, the cause of his honey candying. I believe his honey and ours of this year, or what surplus we got, was gathered from the pines, secreted by a plant-louse, as illustrated in Cook's Manual, Fig. 123. I saw large drops of it dry on the pine buds, and they were nearly as white as granulated sugar. I left two cases of this honey, which was taken during May, our honey season, to have them completed. Two weeks ago, when removed, the bees had taken it nearly all below, leaving me a lot of nice combs in sections for next year's use.

This is my fourth year with bees. I began in 1884 with 4 colonies; expenses, \$85.08. I received on hives, etc., \$29.67. No surplus honey received. I began in 1885 with 6 colonies; expenses, \$24.39. Received 45 lbs. of honey, valued at \$6.00. I began in 1886 with 10 colonies; expenses, \$16.80. Surplus honey, 41 lbs. Value, \$5.00. Receipts in full, \$15.00. I began in 1887 with 11 colonies. Increased to 17; expenses, \$11.25. Surplus honey, 37 lbs. Value, \$4.50. Value of stock on hand, including bees, \$75.00. Expenses for the 4 years, \$137.52. Receipts for same, including stock on hand, \$130.17. So you see I am out over \$7.00 in money, and my time in manipulating the bees. Would you advise my keeping bees with the expectation of getting a profit? G. W. O'KELLEY.

Harmony Grove, Ga., Aug. 29, 1887.

I should say that the first thing you need to do in order to make your bees pay in the future, is to cut down the items of expense. We can manage to get along on much smaller outlays, if we only think so, many times.

I should advise you not to lay out any more money on bees and supplies just at present. Take what you have, and make them bring some return.

KEEPING BEES IN DIFFERENT APIARIES.

SOME EXCELLENT SUGGESTIONS FROM THE DADANTS.

DEAR MR. ROOT:—The reading of the answers to Query 3, and of the remarks that you added, have called to my mind one of our great arguments in favor of keeping bees in several locations a few miles apart. A great many imagine that the dividing of bees into several apiaries is attended with more expense than profit. Yet it is a fact, that we have succeeded better with a number of small apiaries than we used to do with only one or two large ones. Leaving aside the question of overstocking, there is a decided advantage in keeping bees in different places, as the yield is not everywhere the same. Taking the present season as an instance, in our locality, the yield of different apiaries only a few miles apart is quite different, and we find a profit in apiaries placed on the lowlands while the crop is a total failure in other places. On the other hand, in wet seasons the yield on the hills is very great, while it is almost null on the bottoms. An apiarist can have no idea of the difference that a few miles will make, owing to rains, the soil, and the pasturage, until he tries bee-keeping in different apiaries. We have apiaries located a few miles north of us, in the hills, that usually yield a good crop of clover, and that produce little else; on the other hand, our lower apiaries, on the Mississippi bottoms, yield nothing but fall honey, but in this they never fail. Therefore, on the principle of not putting all of one's eggs into one basket, we believe in spreading the bees and occupying different fields. We do not agree with those who think that bees can go safely four or five miles for honey. We have apiaries three miles apart, that yield altogether different crops, both in quality and quantity, and such would not be the case if bees could travel as far as represented. Our home apiary is only two miles from the river bottoms, and our bees hardly ever reach it. We have seen seasons when we were compelled to feed, while those who had bees next to the bottoms harvested a fair crop. The crop of each of six different apiaries differs in quantity, quality, taste, and color. C. P. DADANT.

Hamilton, Hancock Co., Ill., Sept. 8, 1887.

Why, my good friend, you have suggested a very important point indeed, and one that I fear has been a great deal overlooked. This matter of putting your eggs all in one basket is a serious one in many kinds of business; at least, where a new hand starts out by putting all the eggs he has got, or can scrape up, into one single basket. If the basket is upset, he is down completely; and since you suggest it, I have noticed a very great difference in the honey-flow, even in a short distance. When friend Doolittle claimed that bees *could* fly four or five miles, you may remember that I was very slow to be convinced; and with the facts you have given above, I still think that, even if it be *possible* for bees to fly such

great distances as mentioned by friend March, of Washington Territory, I do not believe they often do it where we have ordinary landscape, diversified with forests, hills, valleys, etc. When we first brought the Italian bees into Medina County, I went to considerable time and expense to ascertain how far they were in the habit of going for stores, and my experience was decidedly like yours. At one time, when there was almost nothing to be found except a buckwheat field two miles away, they did store some buckwheat honey, carried that distance, but this was the exception. Italians were seldom seen working on clover, basswood, or any thing else, more than just about a mile and a half from the apiary. Now, if you were compelled to feed your bees when you have positive evidence there was forage only two miles away, it seems to me the experiment is pretty conclusive. Is it not possible, however, that the bees that were gathering stores procured these stores, say a mile or more in some other direction away from the home apiary? If we are going to scatter our bees in different apiaries, it is quite important to know just how far apart we ought to scatter them. Friend Cowan informed us that Captain Hetherington had at present, I believe, 2800 different colonies of bees, and these were located in something like 40 different apiaries, if I remember correctly — some as far away as six miles from the central home apiary.

WHAT ARE THE CONDITIONS FOR EXCLUSIVE BEE-KEEPING?

DR. C. C. MILLER CONSIDERS THE SUBJECT.

A CORRESPONDENT has lately asked my opinion as to the advisability of his giving up his other business and keeping bees exclusively; and questions are frequently asked, bearing in the same direction. So many things must be taken into consideration that it is exceedingly difficult to give any thing like a definite answer; but I will try to give some hints that may help toward making a decision; and if I should say any thing in any way misleading, I feel sure it will not escape Mr. Root's sharp eyes, and I will trust to him to set me straight.

I suspect we are growing toward the time when honey will be largely raised by men who have no other business, and I suppose there may be a number such now; and yet, aside from myself, I do not know of a single individual for certain. Mr. Root, how many do you know who make honey-raising their exclusive business? I have often thought I should very much like to know their names. Perhaps it would not be uninteresting to others for you to bring them out. Of course, I do not mean those in some business connected with bee-keeping, for that would bring in such men as yourself, G. B. Lewis, etc. Now, if there are very few exclusively in the business, it is just so much evidence that, of the thousands of bee-keepers, nearly all have concluded that it was advisable for them to turn their attention partly to some other pursuit. In this material age, perhaps most have summed up the whole matter in these few words: "There isn't money enough in it." For those whose sole aim is to make the most money in the shortest possible

time, it would be hazardous to recommend bee-keeping as a sole pursuit. But there are some who care more for happiness than money—some who, like Mr. Root, could not be induced by any salary to give up a life that suits them for one less healthy and happy. To such I would say, be a little slow about putting yourself in a position to depend entirely upon bee-keeping. Whilst you may make a success in a series of years, the good years overbalancing the bad ones, you are not sure but the very next year may bring an entire failure, and you must be ready for it. Better give up your hold of other business gradually, if you can.

I doubt if any one should go into bee-keeping exclusively until he has at least enough ahead to go through one year without making any thing. For it is so unlikely that two consecutive years of entire failure would occur, that, if I had a strong taste for bee culture, I think I should take the risk of giving up every other business if I had one year's living ahead. Of course, I include in this that a sufficient apiary is owned and paid for. What is a sufficient apiary? That depends. First, figure up how much you need for annual living. Then count for an average location perhaps \$4.00 profit per colony, or, better still, find out what your actual profit for a number of years has been. Dividing the annual living expenses by the profit per colony will give the number of colonies required. But it will not do if you have kept bees one or two years, having ten colonies with a profit of \$10.00 per colony, to count that you can average the same straight along with 100 or more colonies. It may be, that the very next year would bring down the average of your 10 colonies. Moreover, it is pretty certain that 100 colonies would not give you the same yield per colony that ten would. Another thing: If you have never kept more than ten colonies, it is not certain that your part of the work will be as well done with 100. So don't jump into the middle of things, and buy a large number of colonies, but *grow* into the business.

I am aware that, in the foregoing, my advice is somewhat vague; but the nature of the case hardly allows any thing else. If you have the right taste for the business, and the right stuff in you, work your way up—stick to it; and although you may not die a millionaire, you will live a happier life, eat better-tasting victuals, and be more comfort to those about you, than the majority of millionaires. If I may be excused for referring to my own case, I turned my back on a city life with \$2500 a year and all expenses paid, settled down as principal of a village school at \$1200 a year, and paid my own expenses, that I might work into bee-keeping. The time may come when I shall regret it; but it is not here yet; and for the past ten years I have tried what exclusive bee-keeping means.

T SUPERS FOR BEGINNERS.

In my book I hesitated somewhat about recommending T supers for others, and have been asked whether I would recommend them for beginners over wide frames. I think it requires no more skill, if as much, to use the T supers, and I would advise their trial, even for beginners. There is no telling, however, how soon something better than the T super may take its place.

C. C. MILLER.

Marengo, Ill., Sept. 5, 1887.

Friend M., I can not call to mind just now many who make the production of honey their sole business; for, in fact, it is not

very common for people to put all their eggs into one basket, in any line of agricultural industry. Our neighbors Shane and Chase are working principally, I suppose, for honey, yet both of them do something at farming, if I am correct. Friend Doolittle is emphatically a honey-raiser, but he receives at least a moderate income in writing for different periodicals, and I believe the same might be said of yourself and a good many others. Most specialists have, however, I believe, followed your plan by getting entirely into bee culture by a series of steps. Sometimes they get out of bee culture also by a series of steps, and I think this is a far better way than to abandon the business in disgust, and sell off the fixtures for what they will bring. Bee-keepers may sometimes make a good income the very first year, but I believe that such is not generally the case. My experience is greatly in favor of persistently holding on to any line of work that seems to be to your taste. You will eventually reap your reward, if you stick to your work long enough.

COMB VERSUS EXTRACTED HONEY.

J. A. GREEN'S EXPERIENCE.

THE question as to whether it is more profitable to produce comb or extracted honey will probably never be settled to the satisfaction of all. One man declares that he can get three times as much extracted as comb honey, while another insists that he can secure nearly if not quite as much comb as he could of extracted, and both are ready to say that the other man does not know how to raise honey. Both are practical honey-producers, and prove the excellence of their methods by raising large crops of honey. Somewhere between these two extremes lies the truth.

I suspect that a great deal of the difference in results is to be attributed to environment. Much depends on the locality and the character of the honey-flow, and still more on the method and the man. I am almost inclined, though, to call the character of the honey-flow the most important consideration. With only a light flow of honey, especially when in connection with cool weather, bees will store honey in empty combs when they will do little or nothing in the way of comb-building. Let the honey-flow be increased, and the difference lessens until at a certain point it is at its lowest. At this time, I think the best method will secure fully three-fourths as much comb honey as could be had of extracted. Going beyond this point, as is done in our best honey-flows, we find that bees that are well supplied with empty combs will bring in a much larger quantity—sometimes three or four times as much—than they can build combs for.

With the honey-yield just right, there will not be a very great difference in the amount of comb or extracted honey that can be secured; but above or below this point, those who run for extracted honey will come out ahead.

The generally accepted proportion of twice as much extracted as comb is nearly right on an average, with the balance a little in favor of comb if

the extracted honey is well ripened. Three times as much of the half-ripe article usually extracted as honey can be easily secured.

There are other things to be taken into consideration besides the comparative amounts of comb and extracted honey that can be secured from a given number of colonies. A man can take care of a great many more colonies run for extracted honey than for comb, because bees properly managed for extracted honey never swarm, and because the work of taking off honey, instead of being crowded into a few busy weeks, interfered with at the same time by swarming and other distractions, may be distributed through the season, or done wholesale at a time when there is no other work to hinder, at the pleasure of the apiarist. An apiary away from home can be managed much more safely, and with less trouble, if run for extracted honey.

When it comes to marketing the honey, if it is to be shipped off to be sold on commission, there is a great saving of labor and expense in favor of extracted honey, as it requires no manipulation to make it ready for market. Barrels, too, cost far less than crates, and are practically safe from injury in transportation, while comb honey is always liable to breakage.

If the honey is to be put into small packages to be sold at retail, the labor and expense of packages bring the price nearly up to that of comb honey, as comb can be sold in a home market without any expense for packages, which is not so easy for extracted, except at home or by peddling. If you are in a neighborhood where people will pay nearly or quite as much for extracted as for comb—there are such places—it will be to your interest, of course, to produce extracted honey.

Each one must decide for himself as to which will be more profitable in his locality; but a little advice may be acceptable to some. If you want to keep bees with the minimum of labor and attention, produce extracted honey. If you can not produce nice white comb honey of good quality, produce extracted honey. If you have a good home market at fair prices for extracted honey, by all means supply that market. But if you are obliged to ship your honey off to be sold on commission, you will find, as a rule, that comb honey will pay you better. If you can secure most of your crop in nice white comb, you will probably get more money out of it in that shape than if it were extracted. If in your home market a prejudice exists against extracted honey, as is too often the case, it will not pay you, as a general thing, to fight that prejudice. There are many places where only a definite amount of honey will be used, and you can sell just as much comb honey as you can of extracted. There is a double loss in selling extracted honey in such a market. In producing extracted honey you must sell twice as many pounds, while you can get only half as much per pound. Where the market is limited, the result is evident.

I wish, in another article, to tell of my "combination system," in which the production of extracted honey is so combined with that of comb as to get rid of many of the shortcomings and annoyances that are met when working for comb alone, at the same time producing the choicest extracted honey.

Dayton, Ill., Aug. 25, 1887.

J. A. GREEN.

Thanks, friend Green. I should deem the above a very fair consideration in regard to this complicated and very important mat-

ter. By all means, tell us about your combination system.

REPORTS ENCOURAGING.

20 CTS. PER LB. FOR A TON OF HONEY.

A GENTLEMAN of this State by the name of Chas. McGee has lately received 20 cts. per pound for his honey that he sent off to a commission house. How will that do for prices? He had about a ton, I understand, of white comb honey, all closed out at once. I intend to ship them immediately 25 or 30 hundred of comb honey. I will not give you McGee's or the firm's address this time, for fear too many might rush in their honey at one central point, and lower prices. I will later, if wanted. E. L. WESTCOTT.

Fair Haven, Vt., Sept. 6, 1887.

Your letter is encouraging indeed. It is well that you and your friend did not try to rush off your crop as soon as you secured it. We are bound to have good prices, at this rate.

70 LBS. PER COLONY.

I have averaged 70 lbs. of honey to the swarm, spring count, from basswood. I have not got any honey from any thing else, on account of the drought. At present I have 90 colonies.

Kickapoo, Wis., Aug. 20, 1887. G. W. WILSON.

14 BARRELS OF HONEY.

We have had a very bad year for honey here. The spring was too dry. The first honey-flow we had, to amount to any thing, began about July 1, and lasted until August 15th. I have extracted about 14 barrels of honey.

4—F. S. ELDER & BRO., 112—120.

Lake Village, Ark., Aug. 24, 1887.

27,640 LBS. OF HONEY FROM SENECA COUNTY, NEW YORK.

The Seneca Co. Bee-keepers' Association met Aug. 27th, to compare notes and give in reports. Number of colonies given, 1540; number of pounds of honey, 27,640; for sale to date, 20,000 pounds. All bee-keepers but one report less than half a crop. The honey is mostly in 1-pound sections.

GEO. LAMOREAUX, Sec.

North Hector, N. Y., Sept. 10, 1887.

1668 LBS. OF HONEY FROM 11 COLONIES, SPRING COUNT.

I put eleven hives in the cellar last fall. I took out in the spring, the same number, all strong. I increased to 32, two of which are artificial swarms. I extracted 1668 lbs. of white honey, and sold it all for ten cents per pound around home. There was no buckwheat honey, the weather being too dry. My hives are all shaded with grapevines, on the A. I. Root style.

GEO. SLOASON.

Hawkesbury, Ont., Can.

Well done, friend S. It does us good to see a report like yours, after such a season as we have had. Was there any one else in your locality who did as well?

IS A POOR SEASON ALWAYS FOLLOWED BY A GOOD ONE? THE ITALIANS "A THOUSAND MILES AHEAD."

The season of 1887 will no doubt be remembered by a great many bee-keepers as one of the poorest

ever witnessed. I have watched the reports given in the bee-papers with much interest; and with a very few exceptions the reports are discouraging. There was plenty of white clover, but it has not yielded honey. Red clover yielded bountifully. Basswood yielded scarcely any thing. The colonies at present are nearly at the starvation-point. The average yield per colony in this locality has never been less, up to this time, for years. Honey, too, is not of as fine a quality as usual. Sections filled slowly never have as fine an appearance, and weigh less, than those filled rapidly. I am not discouraged yet, even if the season of 1887 was a poor one. There is always a good season following a bad one. There is always a chance for success. The question of Italians or blacks has turned itself right side out again, and will likely open the eyes of some. This slow season has left the blacks a thousand miles in the shade. The Italians have stored some surplus, while the blacks have scarcely got a living. I can truly say, that the justly praised Italians are, in my apiary, far ahead of the common bees. They can be handled without smoke, at any time, and they are good protectors of their homes.

Douglas, O., Aug. 5, 1887.

FRED LEININGER.

REPORTS DISCOURAGING.

WILL HAVE TO FEED BACK.

B EES in this vicinity have done very poorly this season. I have heard of very few swarms, and little or no surplus honey. We have had only one swarm, and it came off late. It has not yet made enough honey to keep it till cold weather. The white-clover crop was good as long as it lasted, but the dry weather cut it short, as it did most other crops. We took from 30 to 50 lbs. of white-clover honey per colony from some of our hives, but we shall have to give it all back and buy sugar besides, for I do not think we have a colony that has enough honey to winter. Some have none at all. If other bees are no better off for stores than ours, and there should be no feeding done, I believe two-thirds, at least, of the bees will starve before spring. GLEANINGS is a good paper. I could not well get along without it. The imported queen we purchased of you last spring is a good layer. Her bees are as gentle as any we have.

LEVI J. RAY.

Xenia, O., Aug. 21, 1887.

150 LBS. OF HONEY FROM 55 COLONIES.

Crops all burned up here. Bees have gathered enough to winter on, and I have taken 150 lbs. of honey from 55 colonies, spring count, and had 10 or 12 swarms. We may get some fall honey yet.

Muncie, Kan., Aug. 8, 1887. JAS. A. NELSON.

HONEY CROP NON EST.

The honey crop this season here has been, practically speaking, non. I shall have to feed the most of my bees. I know a man who keeps 110 colonies about four miles from here, who got less than five hundred pounds surplus this season, and he isn't a beginner either, having grown gray in the bee-business. He delights to talk of that grand old mark, Mr. M. Quinby. He is, in fact, one of the old Quinby school. What a delight it is to spend half a day in company with him, sitting under an apple-tree over-

looking the apiary, drinking in the knowledge as it falls from his lips! It would be amusing for one to listen to our arguments on the black vs. Italian bee. He keeps blacks, while I endeavor to keep the pure Italians. GEO. SHIBER.

Olean, N. Y., Sept. 9, 1887.

DROUGHT IN CUBA.

Those that have suffered in consequence of the drought in the U. S. are not alone in misfortune, for we have had, and are still having, a most disastrous dearth of honey. I thought last year the worst I had seen since I had been on the island, but this beats last year. We shall lose a great many colonies—just how many I can not tell. Such is beekeeping in Cuba. A. W. OSBURN.

Havana, Cuba, W. L., Aug. 20, 1887.

600 LBS. OF HONEY FROM 40 COLONIES, SPRING COUNT.

I commenced this spring with 40 colonies. I have now 96, and only 600 lbs. of surplus honey. The most of my bees are in good condition for winter. It has been very dry all summer. Basswood was good about a week. My bees are Italians, hybrids, and blacks. I have watched them close for 3 years. The Italians come out behind. This year has been their favorite time. A hard year, it is said, Italians work when others lie still, but this year they have not given me a pound of surplus. They are nicer to handle, but I can not keep bees for the fun of it, in my old age. I have just visited two other apiaries of 140 each. They told me their hybrids were their best honey-gatherers. J. B. WHEATON.

Ithaca, Gratiot Co., Mich., Sept. 6, 1887.

MELISSA, OR BEE-BALM.

The first of June found me with 62 swarms of bees, in fair condition for securing the honey crop. The clover bloomed, but gave very little nectar. Time passed on, with an addition of 20 swarms and no surplus honey stored to this date, Aug. 22. Our late rains have revived vegetation, and the clover is sending out a second bloom, and the fall bloom is revived, and we are in hopes the bees will yet gather enough to winter on, if no more. I have had a little trial with melissa, or "bee-balm," this season. It commenced blooming the fore part of July, and still is in bloom. I think it will continue until frost. The bees are on it from morning until dark. I think it is superior to all other honey-plants that I have ever seen. C. M. BLISS.

Fox Lake, Wis.

POOR ENOUGH.

If you will accept a report from me, though very discouraging, I will give you a few facts. From April 28 to May 30 the weather was alarmingly dry. There was but little honey from apple-bloom; clover, none of any account. There was a good flow from locust. Basswood we have but little of. June, July, and August have been so wet that crops have been damaged to a great extent. Black bees gave me 34 lbs. per colony; hybrids the same.

All colonies are strong in bees, but there is no surplus. Black blood is preferable for me in my locality, though hybrids are my choice. Bees wintered badly generally. Mine did fairly. I lost 6 out of 34. Some lost about all in chaff hives, well packed. Severe March weather did the work. Buckwheat honey is coming in now well, and there is a prospect for fall bloom. I have taken from

59 colonies, 400 lbs. of comb and 100 of extracted. Poor enough. GEO. A. MATHEWS.

Katonah, N. Y., Aug. 28, 1887.

NOTES AND QUERIES.

SHALL THE BROOD-NEST BE DISTURBED?

MY lower stories are full of honey and brood. Would you let it all remain for winter, or remove all but 3 or 4 frames?

D. O. MCCAMPBELL.

Harmontown, Miss., Sept. 8, 1887.

[It depends entirely on the amount of bees to be wintered, friend M. If it is a powerful colony of bees, leave the whole entire lower story. If an ordinary colony, say 5 or 7 frames; if not up to the average, perhaps only 3 or 4 frames, as you suggest. And, by the way, a powerful colony will winter about as well just as they are, as any way you can fix them. See discussions in regard to this matter in our back volumes.]

CELLAR WINTERING.

I am putting a cellar under my house. It will be completed about Sept. 20. Can a few colonies of bees be wintered successfully in the cellar the following winter? MERRIT BALDWIN.

Steamburg, Pa., Aug. 30, 1887.

[Yes, if your cellar is dry you can winter a few colonies successfully; that is, if you carefully observe the conditions required for cellar wintering. You will do well to read some of C. C. Miller's recent articles on the subject. See also "Cellar Wintering," in the A B C of Bee Culture.]

DEAD BROOD.

What is the matter with my bees? I have four good strong stands of Italians, with nice young queens, and they are all uncapping their brood when it is about 17 or 18 days old. Some of the brood is turning black. Whether they are all dead or not, I do not know, but they are motionless. They have all got plenty of honey to winter, but scarcely any surplus. A SUBSCRIBER.

[I should judge you have what is called "dead brood" in your hives. Brood that has been neglected, or subjected to conditions unnatural to its growth, will die, and has a gray-black appearance.]

WHAT ARE THE INDICATIONS, IF ANY, THAT A QUEEN WILL BE SUPERSEDED?

Will some of our veteran bee-keepers give your readers an article on why bees supersede their queens, and how to tell when bees are going to supersede a queen? I have read for years the various journals, and never saw a really concise and good article on this subject. Many a fine and prized queen has often been lost in this way—"unexpectedly missing," and it would be a real service to your readers to know more about this important subject. A BEE-KEEPER.

HOW TO MAKE A TESTER FOR HONEY VINEGAR.

I am making honey vinegar. For a test I have tried to use the egg, and the ball of wax with shot inside, without satisfaction. How to get the shot inside is a puzzle, as the apple dumplings were to King George, who was fond of the dumplings, but could not imagine "how the apples were got in." I find it better to eat the egg, and pour melted wax into one half of the shell. In the ball thus formed, stick three wire nails, another in the top to lift it by. Mix some water and honey, 1 lb. to the gallon, and try the tester. D. F. SAVAGE.

Hopkinsville, Ky., Aug. 19, 1887.

BEE BOTANY, OR, HONEY-PLANTS TO BE NAMED.

HERCULES' CLUB—A BEE-PLANT.

PROF. COOK:—In looking over your "Bee-Keeper's Guide," tenth edition, I can find no description of the inclosed honey-plant, which is plentiful on the bluffs of Lookout Mountain. It has just come into blossom, and is worked on freely by the Italians, but not by the smaller common bees. The tree or shrub grows to 10 or 12 feet high, has a thorny trunk, the limbs and flower-stalks branching out at the top of the trunk, like a palm-tree. Sourwood is very plentiful here; and as this tree blossoms just as the sourwood ceases to bloom, it may be of value, providing the quality of the honey is good; but it is such a queer-looking tree or plant that I am doubtful about it. Can you tell whether the sourwood grows from the seed, and whether it can be grown as far north as Maryland and Ohio? It is a beautiful tree, and yields bountifully of beautiful white honey.

DR. C. F. PARKER.

Valley Head, DeKalb Co., Ala., Aug. 15, 1887.

In reply, Prof. Cook says:

Friend Root:—The plant referred to above by Dr. Parker, of which he sends the leaves and fruit, is the curious Hercules' club—*Aralia spinosa*. This tree grows along river-banks from Pennsylvania south. We have it growing on our grounds here at the Michigan Agricultural College, so it is quite hardy. It grows from 6 to 20 feet high. The bare trunk is armed with strong spines, and, like the palm, is crowned with great leaves with ovate-serate leaflets, among which are the flowers.

Mr. P. asks about the quality of the honey. The bees work freely on the flowers here—are even now, Aug. 25th, at work on them; yet as we have only a few of the trees I can not speak of the honey. Can not Dr. J. P. H. Brown, of Augusta, Ga., tell us of it? Mr. Parker says of this plant that it comes into bloom just as sourwood is going out. He also asks if the sourwood, or sorrel tree, will grow from the seed, and whether it will grow as far north as Michigan and Ohio. I answer yes, to both questions. We grow it here, though, like the peach, which it somewhat resembles, it "kills back" in severe winters.

A. J. Cook.

Michigan Agricultural College.

BEE ENTOMOLOGY,

Or Enemies of Bees Among the Insect Tribe.

BARK, OR SCALE LICE, AND RED SPIDERS.

PROF. COOK:—Inclosed find some leaves which are covered with insects, which please examine and tell us what they are and what will exterminate them. HENRY DUNHAM.

Nashville, Tenn., Aug. 18, 1887.

Prof. Cook replies:

On the leaves sent by Mr. Dunham, Nashville, I found scale-lice and the little mite known generally as the "red spider." The scale-lice were the immature forms of the bark, or scale-lice, which were so common a few years ago all through the North, and which so injured the trees, and which secreted the nectar which so annoyed the bee-keepers. For-

tunately for our beautiful shade-trees, and also for our bee-keeping industry, numerous insect-enemies attacked them so vehemently that they were vanquished, and our trees saved. I found that the kerosene-and-soap mixture would kill these lice. It was made by mixing a quart of water, a quart of soft soap, and a pint of kerosene together, then stirring all vigorously till they were permanently mixed. This is easily done by pumping the liquid by means of a force-pump back into the vessel containing it. We then dilute so that we shall have one part of kerosene to ten or twelve of water. This may be sprayed on to the trees just as the eggs hatch in July, or the limbs of the trees may be washed with it late in the fall or early spring, when the lice have migrated from the leaves, and are sapping the branches.

The "red spiders" are often very serious enemies in very dry seasons like the present. They spin a web on the leaves. Frequent drenching of the plants with water will kill them. A. J. Cook.

Agricultural College, Mich.

I presume, friend Cook, the red spider you mention is the same one that troubles florists so much in their greenhouses. I believe, however, that Peter Henderson states that it is caused by having the atmosphere too dry. If this is the case it is easily managed in the greenhouse; but during a dry season like the present it would be a pretty big job to drench "all outdoors" with water. I did not know that the red spider ever made trouble in the open air.

THE SPINED SOLDIER BUG, AGAIN.

An Indiana subscriber to GLEANINGS sends me several of these very useful hemipterous, with the request that I describe them and give their habits.

This bug is about the size of the "bee-stabber," described in GLEANINGS for Aug. 15. It is common all over our country; and as it is a ravenous feeder and lives almost wholly on insects that injure the farmer and gardener, it does immense good. I have never heard that it attacks bees, and I hope it will be long before it forms such a habit. I shall be pleased if any reader of GLEANINGS who may have seen it about bees will tell me if he has seen it mo-



SPINED SOLDIER BUG.

lest his pets of the hive. The figure I send will give a good idea of this bug. Its scientific name is unusually appropriate—"spined soldier bug;" spined, from the spines on the thorax. These sharp spines will enable one to identify this bug. The color is gray to brown. The jointed beak shown in the figure is a most interesting weapon. Within are some long slim needle-like organs which can be forced into its prey. These so wound the unfortunate victim that the blood oozes out, when, by the use of the large grooved labium, or the jointed beak, this nutritious liquid is sucked up. All of these bugs have the same style of mouth parts—a large grooved sheath which conceals the sharp strong needle-like piercers.

A. J. Cook.

Michigan Agricultural College.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Aug. 1.

CHAPTER XXXIX.

For in the wilderness shall waters break out, and springs in the desert. And the parched ground shall become a pool, and the thirsty land springs of water.—ISA. 35: 6, 7.

GOD'S GIFTS.

It has always been an intensely interesting subject to me to look about me and see what God has placed within our reach, that we have never yet discovered or developed. It is for this reason that I have always been deeply interested in mining for coal and the useful metals; and when the oil excitement broke out some years ago, the news of the treasures to be found by drilling down into Mother Earth naturally thrilled my being with intense interest. In the same way I have been interested in the developments of natural gas. But I believe that natural gas and oil are by no means all that nature has in store for us, lying hidden beneath the soil of our hills and valleys. In fact, I do not believe it is well for every one to start out in the oil or gas business. "Every man to his trade" is a good rule here as in most other things.

For some years back I have been studying hard on the problem of water for irrigation during our dry spells which occur to a greater or less extent every season. A little over a year ago I was enthusiastic about saving the rain water that comes so lavishly in the winter and spring. In Chapter VII. I told you about the underground reservoirs for collecting these waters and holding them until needed. Well, the principal trouble with these reservoirs during a protracted drought is, that they become empty, and the ground directly over them dries out even *worse* than where the ground is simply underdrained. I do not believe we can store water profitably for six months by simply making excavations in the ground; for even a pretty good-sized pond will soak away and evaporate until it is gone, or nearly gone, even without drawing on it for irrigating purposes. Our carp-pond would hold perhaps 5000 barrels; but during the recent drought, even though none of the water was used for the purpose mentioned, the water has disappeared until the fish would like to have perished had we not brought a reinforcement of water in the way I am going to tell you of. Now, another thing is to be considered in this problem of storing up the waters from the rain and snow until they shall be needed. An immense reservoir is required. To water an

acre of ground properly would require, say, 500 or 1000 barrels of water every two weeks; and to store this amount for even three months' time would require a cistern or reservoir beyond the reach of even most of our market-gardeners. In favorable localities, very likely the water might be dammed up by a pond; but few are so situated as to avail themselves of this.

The next feasible plan would be to make use of running streams, and this is already being done to a great extent, especially in the western parts of this country, and the area thus irrigated is being rapidly enlarged year by year. Not only streams, but rivers, are utilized entirely in this way. No great reservoirs are needed, because the moving water furnishes the supply day by day as fast as it is consumed. Along the Rocky Mountains the melting snows furnish unfailing streams. Many of our readers are familiar with the method of irrigation; namely, running the water in a furrow until the ground is irrigated, say for four or five feet on each side. At Arlington, Mass., I saw friend Rawson turning water between every other row of celery. When the ground was sufficiently wet in one furrow, the water was turned into the next, and so on. Well, comparatively few of us have unfailing streams that flow on a level, higher up than the ground to be irrigated, therefore this plan can be utilized only in certain favored localities. Then again comes the question, "What shall the rest of us do?" In many localities, springs on the hillsides, or at the foot of the hillsides, furnish large amounts of water that are allowed to go to waste year after year, because nobody has yet had sufficient energy and enterprise to recognize them as God's gifts, and make use of them. A neighbor of mine, a few miles away, had for years a spring on a hillside, that annoyed him by spoiling a great part of one of his best fields. In accordance with a suggestion from myself, however, he arranged it with very little labor so as to run between every alternate row of his cabbages. He constructed a little pond which filled up during the day time, and at nightfall the contents of this pond was let loose so as to pass down be-

tween two rows of cabbages. At the very first trial he succeeded in getting a splendid crop when cabbages were a failure everywhere else. How I have often longed and wished for a spring like friend Green's! But ours is a clay soil, and no sandy hills or great rocks are in our vicinity to make it even probable that such a spring was to be found. Year after year I longed for a spring; but although I had carefully scanned every foot of ground that we called our own I could think of no way to get water from that source. The matter was, however, very much on my mind; and although I often thanked God for the gifts that had been discovered on our ten acres of ground, I had never yet quite faith enough to ask him to give us a *spring*. I had, however, often come around to the conclusion that a spring that would give even a slender stream of water continuously and daily would be worth more than a great reservoir to hold the waters that come sometimes with such superabundance.

When I first came on our grounds I noticed that the stream we call Champion Brook occupied perhaps ten times as much ground by twisting back and forth across the lot as it would if made to go in a straight and narrow channel; therefore one of my first projects was to cut this straight and narrow channel, from the point where the stream enters our lot, to a culvert under the railroad where it escapes. Now, this culvert, although it is large enough for a two-horse wagon with a big load on it to drive through, at certain seasons in the year, during heavy freshets it was in the habit of getting filled up so the water covered several acres of my low ground; while during dry seasons like the present one, Champion Brook is nothing but a dry bed of stones and gravel. Just now I suppose you might follow up this bed a mile and not find enough water for a cow to drink. So you see the great amount of water that does so much damage at one season affords us no relief at another. By making this straight channel, however, so as to shoot the water perfectly straight toward the culvert, I found that it passed through so much more rapidly that there has never been a back-up since it was cut through, unless it was caused by the ice; and at such times a couple of men with poles can stop its damming up, even then. I want to say to you right here, that if any of you have similar plans of making a stream go straight through your lots, don't fall into the error that I did, and imagine

that you must dig a channel wide enough and deep enough to carry *all* the water. Let Nature do the work in this way: First cut a ditch, just as you do to lay tile, in a perfectly straight line, where you want the channel to be. Make this ditch deep enough to *start* the water through it, and no more; then dam up the old channel and all the low places along the margin of your new water-course, so as to force all the water that passes, to go in the new channel. Now keep an eye on it, and after every freshet dig out and dam up and repair, and pretty soon Nature will have formed the channel at a comparatively small expense. Of course, you are to assist Nature by deepening it over hard spots of clay, or by cutting out stones, until you have a regular slant from where it comes on to your land to where it goes out. When there is very little water running, watch the ripples and you can see where there is too much fall and where there is too little. Get some old-countryman who is skillful with spade and pick, and he will fix it nicely for you. The sides of the bank should be just sloping enough so it will not cave in. The idea is, to have them sod over eventually, and this will keep your channel where you want it. If in cultivating crops your rows run toward this ditch or channel, you can make the bank sloping enough so that the horses, in cultivating, can walk down the slope and have your turning-around ground along this slope. This utilizes room, and such a slant will not cave in, especially if you keep the bottom cleared out. The sides of the ditch should be something like the sides of a letter V. Perhaps you had better have enough room on the bottom to make a comfortable footpath in dry weather. Well, last spring, in my anxiety to save my crops from a freshet, I directed Mr. Walker to clean it out and make a very nice straight channel for the water to run in. Along a good part of the stream he went down to the rock, or a sort of slate or shale. In order to get a regular fall I directed him to cut into this rock with a stone-mason's pick, and he did it so nicely that it became a favorite place for the children to play, on this clean rocky bottom.

Some time in July it became evident that a planting of celery would die unless we watered it. We did not want to take the water out of the carp-pond; and as none was running in the creek, we decided to scoop out what we could in the low places. There was one spot in particular where

there seemed to be quite a little water; and one of the boys told me that it ran in there as fast as they scooped it out. I noticed something of a depression, and asked Mr. Walker if he didn't find the rock there. He replied that he did not — at least, nothing hardly solid enough to be called a rock. It was a sort of blue clay that could be whittled into fantastic shapes with a knife. In fact, there is now on our mantelpiece a little Bible that I carved out with my penknife, of soft shale, and the children had often amused themselves by carving figures of this material. Well, when Henry told me that the water came in at this spot as fast as they scooped it out, I pulled off my shoes, waded in, and took the pail. I ladled it out for the boys while they passed it to others on the bank. The bottom of the cavity seemed to be softer and softer as I scraped it with the edge of the tin pail. Finally I scooped through into some beautiful yielding gray and white river sand, apparently, and out of this sand was water springing forth, something in the language of the text — "For in the wilderness shall waters break out, and streams in the desert." Our garden was looking very much like a desert just then under the influence of the scorching July sun. When they got all the water they wanted I scooped out the sand, and threw it on the banks of the stream, then threw the surplus water away down stream until I stood in a little well, perhaps two feet deep. By holding my pail up near the side whence the water flowed out of the sand, it was filled up quickly. I was afraid it could not be true; that is, I hadn't faith to believe that it would hold out. Again and again I filled it. Finally I pulled out my Waterbury watch, even though my fingers were somewhat muddy; and while I timed the filling of the pail, my hand fairly trembled with excitement. There was no mistake about it. God had given us a spring, and one that poured forth beautiful pure water at the rate of a three-gallon pailful a minute. How quickly the figures began to run across my mind's eye — 3 gallons a minute is 180 gallons an hour; and calling 30 gallons a barrel, we have 6 barrels during every hour of the 24; 144 barrels of water in a day! Can it be possible! A large iron tank was brought and placed on the bank on the side of the creek. A new pitcher pump which Ernest had purchased to put in his new house was brought down and screwed to an iron pipe. Then Henry mounted a dry-goods box on the bank, and

worked until the tank was full. As the spring showed no traces of giving out, a piece of hose used in our greenhouse was procured; and by folding one end over the tank so as to have a siphon, we soon had a stream of living water flowing between the rows of celery. As we had already been waiting some weeks for a rain, that we might put out some celery-plants, we decided to wait no longer. One of the boys, with the wheel-hoe before mentioned, made some nice little furrows very quickly. With the hose we then carried the water to the highest point in the furrow, and let it flow both ways. When the furrow was pretty well soaked its whole length, our plants were set out; and although the burning July sun blazed right on to them, they took hold and grew as well as any celery-plants I ever saw. The merits of spring water were well established. Henry found, however, that he could, with his pitcher-pump, draw more than a pailful a minute, so that a beautiful live spring was seen bubbling forth in that hole I had scooped out in the creek bottom. The boys were by this time in full sympathy with the experiment, and the quicksand was scooped out until the whole rock was found, perhaps a foot below the clay. Into this rock we chipped a hole perhaps a foot deeper, and now we had about *two* pailfuls of water a minute; and, best of all, when the pump stopped working, the cavity speedily filled up, and living water was flowing forth down the heretofore dried-up channel. When our proof-reader, Mr. W. P. Root (who is also organist during our noon meeting), asked me to look into the 35th chapter of Isaiah for something to read for our noon service, I was almost startled to find these words: "And the parched ground shall become a pool, and the thirsty land springs of water." Here was the water, and all that was needed to get it was to scrape the bottom of that old dry channel with nothing but a tin pail.

I had not dared to ask God to send me a spring where there were no indications that there might be one; but in his loving kindness he has given us something we did not even ask for. He knew I wanted it, however, and therefore he gave it; but it was, as I believe, because he expected me to make good use of it. One of my neighbors hearing of it, came down to see the spring we were rejoicing over, and said that his cows were out of water, and he had just been wondering what he should do. Through his farm ran a creek just like

mine; and on getting down he found the same kind of quicksand, and water in abundance. Investigation on different points along our creek showed no less than a dozen similar springs, but none that gave the quantity of the one I have mentioned. This subterranean vein of quicksand varies in thickness at different points, and doubtless extends off under the hills in many directions if not in all directions; and after much study and investigation I am inclined to think that this water is held in the sand and gravel only by a sort of capillary attraction. Here is the reservoir that we could not afford to make, made already by the finger of the great Father himself; and instead of holding *thousands* of barrels of water, it no doubt contains *millions*. All that is necessary to get the water is to create a cavity or vacuum, and the water rushes in. When the stream of pure water came out of the sand and rock, and flowed down toward the tube connected with the pump, I ran up to the house and summoned mother and all

the children. Constance (the one we called "Blue Eyes" for so many years) is now a big strong girl of fourteen, and she is just beginning to take quite an interest in these things that have made me happy for so many years. When I explained that this bed of sand and gravel probably went away up under the hill, and may be under our house and factory, she made a remark something like this: "O pa! I do so want to see what is *inside* of the hills! I want to see the springs and the rocks."

"Well, my girls, I am very glad indeed to see you anxious to know more about this beautiful earth that God has given us. I have been long thinking of taking you on a trip to see the home of my boyhood, amid the springs and hills of Summit County. If mother approves, we will take Meg and the buggy and go off for a holiday, starting after dinner."

At this, Caddie joined in with Constance, and they could hardly keep still until the time arrived to start.

CHAPTER XL.

He looketh on the earth, and it trembleth: he toucheth the hills, and they smoke.—PSALM 104:32.

The memory of that three days' visit with the children will always be a pleasant remembrance. How thoroughly I got acquainted with them during these few days, when we three were so much alone together! For several days afterward I caught myself feeling lonesome without them.

Now, then, in regard to the hills. We passed the first night at the old homestead where my mother's father first located in the woods, years ago. A part of his first purchase included the highest hill in the vicinity round about there; and I told the children the night before, that, if they would get up early enough, we would go up and see the sunrise from the summit of grandpa's hill. Now, grandfather Hart had a great taste for natural science, although he had no modern advantages in the way of education, and this great hill had been for years a hobby of his. While we stood on the summit of that hill the next morning, taking in the beautiful scenery spread out before us as it was lighted up by the morning sun, I told Caddie and Connie that it was nothing strange that they, in

common with myself, should want to know what is inside of these great hills; for the very blood in our veins was that which stirred grandpa, perhaps fifty years ago, to want to know what was inside of this great hill. In fact, fortune-tellers got hold of the idea that this hill was his hobby, and one after another offered to tell, for a certain sum of money, what was hidden beneath its lofty summit. I remember an advertisement that appeared in one of the papers somewhat later, of an instrument called a "goldometer" that would tell whether gold or other valuable metals, or even coal, was hidden in the earth beneath. Grandfather sent two dollars, but that was the last of it. When I told the girls that he became so curious that he made investigations into the hillside, they were impatient to be led to the spot. Then I took them to a little mound, or grassy knoll, off a little to one side, where for years there had been a single little grave. Years before I was born, a little child named Amos, in climbing up to get something from the mantlepiece, fell with his face into a kettle of boiling maple syrup.

He lived several days afterward, but most of the time was calling plaintively for water. When he died, as they were far away in the woods, a lonely grave was made on the spot where we stood; and when I told the children that their papa was named after this little one, a sad and solemn look came over their faces. Cousin Ray then piloted us to another spot on the slope at the foot of this great hill; and after he had pulled off a lot of brush and sticks from a cavity in the ground, he took hold of an iron ring and began to pull. I thought of the stories in the Arabian Nights, and wondered if some genie was going to raise up and tell us about the gold or silver, or, possibly, even commonplace coal that lay hidden beneath this old mountain, as it seemed to be, almost, in our eyes. Well, the lid came up and we peered down. We did not see any genie, however, but only the reflection of our own faces in a beautiful cool spring that bubbled up in the bottom. I notice in Summit County, that where springs are found, of late years, they use a great many tubes made of stoneware, to place over them. These tubes are like a great stoneware crock without any bottom, and many holes are made through the sides, to permit the water to flow in. About half way to the bottom of this spring a pipe came in it through the side of the stone crock; and over the end of this pipe was a tin can pierced with many holes. A few rods further down the slope we came to the lane where the cattle and horses go to pasture. The pipe that came from the spring poured into a trough that ran under a fence so as to water the stock in two different lots. From this trough it poured into a second trough that stood in the lane. A tin cup hung on a post, and from this tin cup we took draughts of cool spring water—the veritable soft water of the springs of Summit County.

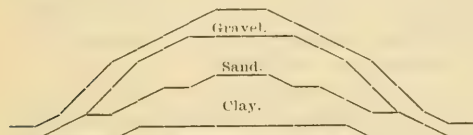
Grandfather did not find any gold in reward for his investigations, by digging into the hillside; but I told Uncle Ben's folks I should consider that spring worth more than gold or silver or coal either, if I had it. After the water poured out of that last trough it ran under a bridge, and then down into the pasture lot. For *sixteen years* it had been running right on that one spot. Did it cause a great luxuriance in growth over the other grass and weeds in that field? By no means. Let me tell you, my friend, if you don't know it already, that pouring water on to a piece of ground continually, day after day, *won't* make things grow. In fact,

all this spring did to this pasture lot was to make a mucky swamp where the cows got mired if they attempted to go across or through it. To make things grow you must saturate the ground and then let it dry out. When sufficiently dry, saturate it again, and so on. This rule applies to flower-pots, window-gardens, dooryards, and every thing else where we practice irrigation. Nothing but swamp-weeds or genuine water-plants will grow where it is constantly wet. Close by this swamp-bog formed by that spring was a great lot of rich sheep-manure, for Uncle Ben deals largely in sheep and cattle, buying and selling them by the carload. I tried to get my cousins, Ray and Judd, interested in starting a celery-garden where that spring was spoiling the ground; but although Nature had placed every thing so very handy and convenient, there it lay year after year, untouched and unused. Why, I almost felt as if I must take off my coat and show them what could be done with that spring of water.

Before night I found there were hundreds of other similar springs all over Summit County, doing that very same trick—running down the hillsides, making swamp-bogs, and doing no good to anybody. I did rejoice to find one gentleman, a friend of our bee-journal, by the way, laying under-drains to get rid of this surplus water, and I believe he proposed making a garden. There it was on my old homestead, right where I used to make garden thirty-five years ago, and I had thought of that spot, with its wealth of spring water, time and again during these years that are past. I have not time here to tell you of the springs we found on that trip; but some of them pour forth water enough to run quite a water-power, and yet they do nothing, winter or summer, more than to water the stock.

Another relative, in Tallmadge, has brought a spring down a hill, and up again to his house on the opposite hillside. Here it gives a constant stream for the use of all the household. Then it goes to the barn, and fills a large tank where the stock can drink every day in the year; and after that—now, what do you suppose it does after that? Why, it just runs off on the ground, and has done so for years, doing no good to anybody. Where it leaves the kitchen it is on higher ground than the kitchen garden; and although the kitchen garden suffers just like other gardens, from the lack of rain, nobody has yet ventured to turn this surplus water between the rows of vegetables.

At Mogadore (Summit County) I had an opportunity of satisfying Connie's desire to know what there is inside of these great hills. The railroad company had purchased one of the largest of them, just for the gravel; and at the time we were there they had taken off just about half of the hill, leaving the strata of sand, gravel, and occasionally clay, plainly visible. But a richer treat awaited us in a sandbank belonging to my nephew, who lives on a hillside. He, too, has grandfather Hart's blood in his veins, and has also inherited a disposition to want to know what there is in the hills. Like grandfather of old, he was not satisfied until he had dug a hole in the side of his hill, and there he found the most beautiful, clean yellow sand. This particular hill has also strata of sand, gravel, clay, etc.; and here the strata seem to curve with the curve of the hill. In fact, the different layers are much like the layers seen in cutting into an onion. But there is something stranger still about it: Near the convex surface of the top of the hill the layers seem to have been separated by some convulsion of nature, so as to leave cavities, or pockets, if I may be allowed the term. Now, the beautiful sand he found was between the strata, within these pockets. Near the summit of the hill the vein was perhaps two feet thick; but it curved downward toward the valley until it disappeared in a sharp edge. The diagram below will illustrate this plainer; and if you will use your eyes at the first opportunity, you may glean many wonderful facts in regard to the formation of this earth upon which we live.



SECTION OF HILL AT MOGADORE, O.

My nephew is also something of a market-gardener, and his celery, cabbages, etc., were suffering from the lack of water, like those of the rest of us. I assured him there were springs at the base of this strange hill, for I thought the spring water must be conducted along through the different strata. He insisted there were no springs high enough up to take the water on to his garden. At the foot of the hill was the usual muck swamp which we find so frequently in Summit County. I pushed down among the bogs, and found a ditch he had been cutting through to get rid of the surplus water.

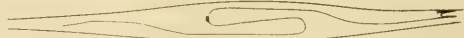
"Why, look here, Homer. You surely have springs that furnish the water for this ditch."

"Why, no, Uncle Amos. You see the ditch is now about all dry. See here; there is not a bit of water running."

"But, my young friend, will you please to look *here*?"

I showed him that, a few rods below where he stood, there was quite a good stream of water. And, by the way, I have several times found springs by following up ditches or runs. When you find running water in one place, and none a distance above the spot, you have got track of a spring. Pretty soon I reached my hand in a hole in the bank, and out came water enough to fill an inch pipe. He promised to follow it up to its source, and see if he could not find it high enough to turn on to his garden; and I am quite sure that many of you, my friends, may find springs on your own land, if you will search diligently.

In visiting the Glen, at Cuyahoga Falls (Summit County), we had another wonderful lesson in regard to the interior of the earth. The Cuyahoga River has cut through the soft sandstone, in some places to a depth of several hundred feet; and the straight walls, as they rise up, reveal to human eyes the wonderful rocky structure of old Mother Earth. Strata and pockets are visible here without number; and in one place a thin layer of brown rock has been crimped by some convulsion in former years, so that it has lapped over on itself, like the figure shown below.



KINK IN A STRATUM OF SANDSTONE, TO BE SEEN AT CUYAHOGA FALLS, O.

Now, after this crimping, or doubling-up, the great rocks settled down so as to flatten it down all solid together; but it is plainly evident by the grain of this curved strata, that it was formed by some great convulsion at some stage of the formation of these wonderful rocks. From many of the strata, beautiful springs flow forth; and one great overhanging rock sends forth so many of them that it has been aptly named "Weeping Rock."

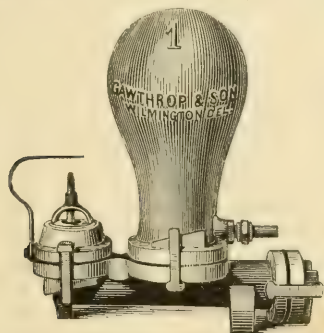
In the afternoon we stopped at the house of a Mr. Babb, a mile or two west of the town of Cuyahoga Falls. The bottom of Mr. Babb's cellar is cut into the solid sandstone that comes clear to the surface of the hill whereon stands his beautiful dwelling.

In the middle of the cellar a square hole is cut in the rock, perhaps a foot deeper than the stone cellar floor. Into this cavity a stream of soft water flows, which I should think capable of filling a two-inch pipe. The cool water passes around their milk-cans, forming a sort of spring-house, and then it comes out into the dooryard, where it fills a fish-pond cut in the rock, perhaps 20 or 30 ft. across. Several years ago this little pond was filled with most beautiful speckled trout. The water is constantly moving and constantly overflowing, and this gives the surface a mirror-like brightness that is most fascinating to passers-by. After leaving this reservoir the water pours in a series of waterfalls down a rocky gorge. As we started along with Meg and the buggy I ejaculated, "O children! here is a hydraulic ram."

"Why, where is a hydraulic ram, pa? and what is it? Where do you see it?"

I was obliged to say that I didn't see it at all; and then came the question, "Why, pa, how can you say, 'Here is a hydraulic ram,' when you confess you don't see it, and have not seen it?"

I told them that, although I had scarcely ever seen one in my life, I knew the clicking sound, or the series of thumps, or, perhaps more correctly, pulsations, we heard, were caused by a hydraulic ram; and in a moment more there it was by the roadside.



HYDRAULIC RAM, FOR ELEVATING WATER.

There it stood, all by itself, but yet hard at work, and it was to me a thing of life and beauty. It made the water fly and spatter; but in doing so it pushed perhaps a fourth of the whole stream away up to the top of a hill, and poured it into a tank over the fence, for the stock to drink. Besides this, it sent it up into a great bank barn on the hillside; and, in fact, it pushed it up hill and down, wherever it was wanted, over that hilly farm. At one time I felt quite sanguine about carrying my spring water by a hydraulic ram; but when I told the manu-

facturers that I could not get more than a foot, or at most two feet, fall on my premises, they kindly informed me that it would not be best to try to use one. The address of the maker is Allen Gawthrop, Jr., Wilmington, Del. But perhaps many of you, my friends, can make use of this ingenious little machine. I was surprised and pleased to learn that they are now manufactured for the very low sum of only \$11.00.

Well, there is something else that we kept track of during our visit, besides the springs, and it was windmills. They are now dotting the landscape here and there through almost all of Ohio, and I feel like thanking God whenever I see one. I will tell you why. Mrs. Root is a nice cook—at least so they say in our home, and she is rather particular about her materials for cooking. I have told you before how she complained when the boys carelessly gave the cow spinach that had gone to seed—so much so that it was bitter. At another time one of the small boys gave her a lot of onions. Everybody who tasted of the milk after that knew it, I tell you. Well, ever since this dry weather the water in Champion Brook dried up so it stood only in stagnant pools, and Mrs. Root complained again of the milk. She finally insisted that Henry should give the cow a pailful of clean water from that new spring we were rejoicing over so much, as often as the cow would drink it. He did so, and the milk was all right. Furthermore, Bossy showed her preference by coming up to the fence near the spring, and making a fuss every time she wanted fresh water. Well, the windmills scattered over the land indicate nice pure water for the cows; and pure water for the cows means a smaller liability of typhoid fevers and such like diseases that often take away our loved ones during the dry weather of August. I told Connie and Caddie to watch the windmills and see what particular ones ran with the lightest breeze. They soon learned to call them by name, and we noticed certain makes that were almost always pumping. By the time we got home we had decided pretty much what kind of a mill we wanted. Then a lot of letters were dispatched to makers of windmills. I wonder, my friend, if you are as ignorant of the real cost of a good windmill as I was. When one manufacturer named \$36.00 as the price of a windmill, all complete, except the tower, I thought he must have made a mistake; but when others offered them at prices varying from \$38.00 to \$50.00, I felt

like thanking God again that these beautiful machines were at length offered for so small a sum. My plans were pretty quickly matured. When I scooped the water out with that tin pail I noticed a pure silvery stream that came out of the sand and rock. It came from the northern bank of the brook, and a few feet away—far enough to get into the solid ground—Jacob was directed to dig a well. He is a stout German boy, and it is just fun for him to dig. In a little more than a day he had thrown out the yellow dirt, so that he got a glimpse of the blue clay.

As before, we found this blue clay just about one foot in thickness; and when we got through that, that gray quicksand full of water presented itself. The transition from the clay to the sand is so sudden and abrupt that we cut out a great chunk of the clay off from the top of the quicksand. It came off as clean as you would slip the custard from the crust of a piece of custard pie. In fact, I turned the block over and washed its under surface; and when the sand was cleaned away, there was the smooth bottom to the block of clay. Then comes the question, Why doesn't this immense weight of clay and earth sink down into that soft yielding semi-liquid quicksand? I presume the only reason is, that there is no place for the quicksand to go to get out of the way, so the solid earth rests on it, much as it would rest on a body of confined water. This bed of quicksand is perhaps one or one and a half feet through, and then we come to a slaty rock. Jacob dug down into this rock perhaps a foot, to make room for the pump; and as it was then dinner time the well was left. I told the boys to get back as soon as they could, because there would be so much water in the well. In just 30 minutes we were on the spot, and, to my great astonishment, we had quite a well of water. A little figuring revealed the fact that at least five barrels had run in in 30 minutes. Now, 10 barrels an hour would be 240 barrels a day; but we were not sure that the spring would give this amount continuously.

Well, friends, as I write this morning, Sept. 9, the windmill is pumping away, and the carp-pond is partly filled up—at least there is water enough so the fish are rejoicing in it; and it is not stagnant pool water either. It is clear running spring water. The windmill delivers it into a tank close by the well, and this tank is for irrigating the creek-bottom garden. In case the wa-

ter is not used as fast as it comes in, however, a pipe takes the overflow and carries it over to the bank of the carp-pond. Before going to the pond, however, it fills a large tub made of the larger half of a cask or barrel. This tub is for the Jersey cow; and she admires it so much that she comes and takes a big drink whenever any visitors come to see our spring and waterworks.

When the tub is filled nearly to the top with surplus, it pours over into the pond, as before mentioned, and the windmill keeps up a stream of running water, the volume varying according to the strength of the breeze. I do not know that I ever put up any piece of machinery that has given me so much pleasure as this mill. It is the Eureka, manufactured by Smith & Woodward, Kalamazoo, Mich.

Now, for irrigation we need a large reservoir or reservoirs for storing the water during the occasional days when the wind does not blow; and although our well gives us so large a volume, I felt as if I could hardly spare the water in the springs that fill the channel of the brook. This channel, you will remember, is one that is cut straight through the land artificially. In places it is five or six feet deep. Well, by putting some heavy planks across it at the lower side of our grounds, we have dammed the water up so it sets back as far up as the windmill and pump, and even further. Just a couple of plank set in against firm posts, with their joints made tight with the afore-mentioned clay that came out of the well, have given us a reservoir that will hold one or two thousand barrels, at an expense of only four or five dollars; and during a very windy day, when the water is pretty much out of the well, it passes through from this reservoir, through this porous quicksand that I have mentioned; so you see, during a drought like the present one I have a reservoir to draw on besides the capacity of the well. As soon as the children saw this long pond, Huber petitioned for a little boat. The boat is made, painted white, and christened the "Mayflower;" and could you see the children enjoy themselves scudding up and down this canal of clear spring water, you would, I think, agree with me, that the arrangement is worth all it cost to make home pleasant for the children, if nothing further. I used to say I would give \$500 for a living spring on our premises, and here it is pouring forth a steady stream *almost* constantly, at a cost of considerably less than even \$100,

To be continued.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

HOW MANY COLONIES CAN BE KEPT IN A CELLAR, WITHOUT VENTILATION?

AFTER reading Dr. C. C. Miller's article on "Ventilating Bee-cellars" I thought the very point I was looking for was passed over by both the doctor and yourself. He states, "Years ago I wintered 8 colonies in a cellar which was as tight as I could well make it," etc. "Those colonies came through in the finest possible condition—for the little air forced through the cracks of the cellar is enough for the few colonies. . . . But when I put 200 colonies or more in that same cellar, the case was materially changed." Very good; but where between the 8 and the 200 would the ventilation in that cellar commence to be needed? What should be the number of cubic feet to each colony, so managed in that cellar as to need no ventilation? It would seem to me, if these questions could be answered from observation taken, we should be on the right road to solving the problem of wintering bees. Even should one wish to put more than that or a certain number in a given cellar, we should know something of the amount of ventilation that would be needed.

A. E. SMITH.

Darlington, Wis., Aug. 22, 1887.

HOUSEHOLD CONVENIENCES—ANOTHER VIEW.

I have been greatly interested in the articles on home conveniences, written by Dr. Miller, Prof. Cook, and others, and can heartily indorse all of them; still, one point has not been mentioned, if I remember right. If we admit, for argument's sake, that our houses are inconvenient, our women overworked, and we are thoughtless, I still think there may be a little fault somewhere else. The writers I have mentioned have shown us that it is our duty to provide conveniences, and to remove inconveniences. How shall we know what conveniences to furnish—or, rather, whether a change made by us will be an improvement or not? Few of us are obliged to do our own housekeeping; but we are required to supply provisions, etc.; and as the latter duty takes nearly all our time we can not watch others to notice whether they are doing needless work or not; neither can we realize inconveniences they may labor under, as we could were we in their places. That is the way I look at the matter now, and I can suggest but one way to remove the difficulty. If the women who do our housekeeping will carefully think over their work, and see what causes them needless steps, and suggest an improvement, then I think we shall do our part, and their work will be made as easy as possible. If I were a wife or housekeeper I should do this, not in a fault-finding way, but pleasantly. Lots of men would make their wives' work easier if circumstances permitted.

G. A. HURD.

South Acton, Me., Aug. 29, 1887.

Friend H., by all means consult the women in regard to the improvements you are going to make; but a good many women, as well as other people, never think of there being a better way, many times, unless some one suggests it to them. A few days ago one of our women in the factory was filling glass jars with tomatoes, preparatory to

canning. She used a table-spoon, and was so long in getting the tomatoes in the jar I feared they would be so cold they would not keep. I asked her why she did not use the little tin tunnel we have on purpose. Now, although hanging within a few feet of where she was at work, she did not even know we had one. A little more observation showed me that she was trying to get the solid part of a tomato without the juice. I asked her why she did not use a perforated skimmer. She replied to this, also, that she did not know we had such an implement, and I was surprised to find there never had been one in the kitchen. Right at the head of the stairs—close by where they are at work—is our counter store, where four different patterns of perforated skimmers and wire dippers were hanging over the counters, and had been for years. In fact, we sell them by the hundreds. I carried them one of each, and told them to keep them and use them, and they were astonished to see what a handy thing a wire ladle is. Now, this we meet at every turn. People take slow and laborious methods of doing things, and wear themselves out with fatigue, when implements for doing the work better and cheaper are often, perhaps, right within a few yards of them. I have sometimes thought that we need more brains a great deal worse than we need more tools; and please, Friend H., don't rush to the conclusion that it is the women-folks alone who don't make use of, or who don't take short cuts with, the appliances that are already right at hand.

EJECTED HONEY.

It seems from the contents of the *American Bee Journal* of late, that the bee-keeping world is in a rage for a new name for extracted honey; and every name that could be thought of, almost, has been suggested; but none of them seem to suit Bro. Newinan. Well, so far as I am concerned the name "extracted" is as good as I want; but if anybody else wants another name, and nothing but a change will do them, then by all means let them call it by some word that simply expresses the truth in the case. Now, every Latin scholar knows that the word "extracted" means "drawn out"—from *ex*, out, and *traho*, I draw; and we all know that the honey is not drawn out, but thrown out. Well, if it is thrown out, then let us use the word that expresses that, and nothing more; to wit, *ejected*—from *e*, out, and *jacere* to throw or cast. Consequently we will call it *ejected* honey, if we must have a change; but I insist that a change is not absolutely necessary. However, if you want a change, Bro. Root, and the word I have suggested suits you, I hereby give you all the right and title that I may have (as the first one to suggest it) to the patent. So I shall in a few days order of you a "honey-ejector"—ha! ha!

Bees are working finely on my buckwheat. Weather is dry and cool.

J. G. NANCE.

Bellview, Ky., Aug. 31, 1887.

Friend N., the principal reason why I should prefer the name "extracted" alone, is, that I very much doubt whether the name *could* be changed, even if we tried ever so hard. When people get accustomed to a term, and use it a dozen times a day or more, the world over, it is a bigger task to

bring about the change than one who had not already tried it would imagine. Reforms in naming things in bee culture have been talked about for years, and some of them have been agreed upon, but that was the end of it. A very few tried for a little while to use the new name, and then got discouraged and gave it up. Shall we not let well enough alone?

GRAND DISPLAY OF BEES, QUEENS, HONEY, API-
RIAN SUPPLIES, ETC., AT THE OHIO STATE
FAIR, 1887.

Notwithstanding the dry season, one of the most attractive sights at the State fair could have been seen in the apiarian department of Agricultural Hall. Many of the stalwart bee-men of the State were there with bees, queens, honey, and supplies. The following persons were awarded premiums: Elias Cole, of Ashley, O., five premiums, aggregating \$30.00. Aaron Benedict, of Bennington, O., first on bees and second on feeder. C. E. Jones, of Delaware, O., was awarded 8 premiums. Dr. Besse, of Delaware, O., received four premiums. W. P. Crawford, of Delaware, O., three premiums. G. W. Newlove, of Columbus, O., first on thin foundation. Chas. McClave, of New London, O., received two premiums. The deepest regret prevailed, caused by the absence of the newly elected officers, the president and secretary of the Ohio State Bee-keepers' Association. Hoping that we may never have the opportunity to allude to their absence again, when their presence is expected, we will forgive the past and hope for better in the future.

Bloomington, Ohio.

S. R. MORRIS.

The president very much regrets his absence at the State fair—the more so, because the bee-men of our State did so well under adverse circumstances. If the real truth were told, he would have to confess that the date of the fair quite slipped his mind until after it was too late to get to Columbus in time. He and the secretary will try to make amends by doing all they can to make a rousing good convention, to be held in Columbus some time in mid-winter.

DO BEES EVER PUNCTURE FRUIT?

Does the honey-bee ever puncture the skin of any of our fruits, and afterward suck the juice? This subject has been under discussion at some length in the meetings of the Portage Co. Horticultural Society, and also of several papers read before the Garretttsville Antiquarian and Scientific Society. This will be again presented before the first-named society this month. I desire the opinion of the most noted bee-keepers on this important subject. I shall be pleased to learn your opinion at an early date; and when published I will forward you a printed copy of the paper on this subject.

GEORGE J. STREATOR.

Garrettsville, O., Sept. 1, 1887.

Friend S., this matter has been discussed over and over again for years, through our bee-journals; and the sum and substance of a great amount of the testimony seems to be about this: As a rule, bees do not and can not puncture fruit, even if they wanted to ever so much. A great many would stop right here, I presume. My opinion is, that they can puncture fruit to some extent when they get sufficiently excited, and when they are in sufficient numbers. As an illustra-

tion: I have seen bees so excited around overripe grapes that great clusters of bees covered the bunches, so that not a grape was visible. The bees were at such times rolling over each other, and fighting for the grapes. When bees get on such a raid as this, they will almost cut through inch boards, and at such times the grapes disappear—good, bad, and indifferent. Now, I can not say positively that there were any perfectly sound berries in any of the bunches; but my opinion is, after the best investigations I could make, that the bees had got a going so savagely they managed to cut into the grapes in some way or other—perhaps by starting an opening where the stems joined the fruit. May be they pushed so hard they crowded the fruit loose on the stems; and from what I know of bees I think the latter is quite probable. It is no more than fair, however, to add that we have good crops of Concord grapes year after year, right over our bee-hives. There are 400 or 500 bearing vines, and the bees have never yet worked on the grapes enough to destroy a single pound. Most seasons they never notice them at all.

HOW TO MAKE THE STOPPER, AS SHOWN ON P. 576.

When giving a description of my machine for emptying supers I omitted to explain the stops which hold the supers in proper position upon the bearing-board. They are shown in Fig. 6, at Z, page 576. They are formed by fastening to each of the end-pieces of the machine a piece of board three or four inches wide and $\frac{1}{2}$ inch thick (the width and thickness are immaterial), and long enough to extend backward as far as the back side of the super will require to go when being emptied. These are sawed off square at the back end, and another piece reaching across from one to the other is nailed on to them. This forms a stopper to keep the super from going too far back. A block is nailed into each corner of this stopper, of suitable dimensions, so that when the super is placed upon the bearing-board, and pushed backward against the stopper, it goes loosely between said blocks, by means of which it is held accurately in place while the follower is brought down upon it to remove it from the sections. The stopper for wide frames is made by first nailing a strip $\frac{1}{4}$ inch thick, and as wide as the thickness of the bottom piece of bearing-board, on to the back side. Over this is nailed a piece of board which extends upward above the upright bearings, high enough to form the stopper.

JOSHUA BULL.

Seymour, Wis., Aug. 17, 1887.

SUFFICIENT ENERGY AND ENTERPRISE, ETC.

On page 637, speaking of two Medina bee-keepers who got a big yield while their neighbors, north, south, east, and west, got nearly nothing, commenting upon it you observe, "Give us a man with sufficient energy and enterprise, and he will have a crop, no matter what the season may be." You certainly ought to know the way at Medina, but this time you are off to the "Lake of the Dismal Swamp."

J. HAMILTON.

Beason, Ill.

Well, I declare, friend H., I don't know but that I have got myself in a tight place this time. I don't believe I shall back out just yet, however, even if you and Dr. Miller

do crowd me pretty hard. A man with sufficient energy and enterprise would probably, in the course of time, start a honey-farm, and raise plants enough to furnish the honey. If a dry season came, so nobody else got any, he would put up a windmill and irrigate his grounds so as to get a big crop when the price was away up. There, don't you think I have made out a pretty good case, after all? I want to refer the above answer to Dr. C. C. Miller as well.

BEES REFUSING TO TAKE FEED.

We have been feeding our bees at the entrance (in Simplicity feeders) at dusk. It rains so often at night that we decided to feed in the upper story. We did so, and the bees at first took the feed (extracted honey) readily. We then thought we would give them more at one time, and so gave each colony 4 feeders full instead of one. The result is, that the feeders have been in the upper story of each hive about four days; and the bees, though they have free access to it, the same as when they had only one feeder, refuse to take any of the feed. It can not be that there is nectar in the flowers, for bees are gathering absolutely none.

E. & W. MONEY.

Cobham, Virginia, Aug. 27, 1887.

As you state it, friend M., I can not think of any reason why the bees should refuse to take the feed, unless it was something they disliked. It is, however, true that any colony of bees will in time get tired of being fed. I have made a single colony take a whole barrel of sugar; but toward the last they got so they would hardly taste it. Had the same kind of stores been secreted by the flowers in the open air, they would have labored with unabated energy until all was gathered, and more too. I have sometimes thought that bees reasoned something like this: "This food is already inside of our hive, and is our property. Why should we be in such haste to get it down into the combs? It can just as well stay here in the feeder until we need it." The above, bear in mind, is only conjecture; but I have oftentimes seen colonies act in that way, when in some of my experiments I have undertaken to feed them excessive quantities.

HOW TO MAKE A CLAMP TO WINTER FIVE COLONIES.

I want to make a clamp to put five colonies of bees in. Shall I need a drain to keep it dry? How deep should I make the pit? Will it need to have an inlet, and what size should it be, and what the size for the outlet? Will there need to be a hole in the top of each hive? SUBSCRIBER.

We sent the above to friend Hutchinson, and he replies as follows:—

I have made clamps upon a sandy knoll, and no drain was made or needed. Ordinarily I would have a drain. A 2-inch tile will answer for a drain. I would have the pit deep enough so that the tops of the hives would be but little, if any, above the surface level of the ground, and at the same time allow a space of about 18 inches below the hives. The sides of the pit may be made slanting, and terminate in an angle or point, at the bottom. For five colonies an excavation 4 feet wide and 7 or 8 feet

long, at the surface of the earth, is large enough. As mentioned above, the sides may slant to a "peak." No hole will be needed in the tops of the hives; but it would be well to have as much "openness" as possible at the bottoms of the hives.

W. Z. HUTCHINSON.

Rogersville, Mich., Sept. 1, 1887.

PUTTING THE BEE-SPACE BELOW IN THE T SUPER.

I have found it a decided improvement on T supers, which are to be used over zinc honey-boards, to turn up the metal supports $\frac{1}{4}$ inch, thus making a bee-space below. This prevents gluing sections to the honey-board, gives free access to supers, and brings the sections flush with the tops of supers, so that the enamel cloth lies down smoothly on the sections.

C. B. THWING.

Hamilton, Mo., Aug. 23, 1887.

Yes, you can so arrange the L tins in the T super as to leave a bee-space under the sections. This we at first suggested, as you will see by referring to page 156, current volume. But if you will turn to page 217 you will see good reasons for putting the bee-space on top of the sections. If you have only the plain sheets of zinc, I should still prefer to have the bee-space above. You then have to set the supers on two quarter-inch strips, to provide for the bee-space under the sections. I should never cover the sections with an enamel cloth, for the bees will propolize it to the edges of the sections. Better use a T-super cover, bee spaced above the sections.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

Question No. 4—Is it wise to abandon the beveled edge on the Simplicity hive for the plain unbeveled or square joint when there are many thousands of beveled-edge hives in use? Are there any advantages to be gained in dispensing with the beveled edge? If so, what are they? S. J. M.

I have had no experience with the Simplicity hive. MRS. L. HARRISON.

I have never used the beveled edge, so I could not say. G. M. DOOLITTLE.

Being a manufacturer, I will avoid answering this question. PAUL L. VIALLO.

I do not really like the beveled edge, but would not change if I had many in use. O. O. POPPLETON.

I believe it would be in my locality. One advantage would be, more convenient to make; less trouble to adjust. In my locality every crook and turn is crowded full of propolis.

DR. A. B. MASON.

We do not like the beveled edge, because it is almost impossible to make the oil cloth, mat, or other covering, fit well on it. We would not use the beveled edge, even if every one else were using it.

DADANT & SON.

I much prefer the bevel omitted. If I had hives with the beveled edge, I do not think I should throw them away. Yes. They are much more simple, cheaper, less apt to split, and more readily closed without crushing bees.

A. J. COOK.

Perhaps not on the Simplicity hive. Uniformity is a great boon. The advantages of square joints over beveled edges are mainly to be found in the perfect lateral movement they allow when adjusting the edges together when bees are contained within the stories.

JAMES HEDDON.

On this I have nothing to say, as I do not use beveled-edge hives. We keep all our bees in quadruple hives, and they have square joints. I should think those thin beveled edges would get split off in handling.

E. FRANCE.

If my hives were all of the beveled-edge pattern, I would do some hard thinking before I made any change. If all the hives in the world were beveled, and I were commencing anew, I would have square joints, for the sake of simplicity and ease of manipulation.

C. C. MILLER.

The beveled edge is "a delusion and a snare." It was devised to keep the water out; but instead it seems to suck the water in worse than the square joint. Still, it may be better for Mr. Root's factory to go on making the bevel rather than to change. My favorite way of supering is with no upper story at all, consequently I am not bothered with either bevel joint or square joint, and yet all the surplus is taken by top storing.

E. E. HASTY.

I fail to see what bearing the number of beveled-edge hives in use has upon the question of their abandonment. The objections to the beveled edges are, that they are more difficult to make, and answer no useful purpose. They afford greater facilities for the bees to stick the two stories together with propolis, and when stuck together they are more difficult to separate—it being well nigh impossible to insert a knife or screwdriver, without mutilating the edges of the hive. When using hives two stories high these beveled edges are regular "bee-killers," as they go together upon the telescope principle, and there is no chance to avoid killing bees if the colony is so strong that the edges of the hives are covered with bees. With a plain edge the upper story may be put in position with a cornerwise movement that will brush away instead of killing the bees. No joint can fit any closer than a plain square joint; and if there is any crack, the bees soon stop it with propolis.

W. Z. HUTCHINSON.

I am not at all surprised, friends, at the answers given to the above query; for, as you will notice, very few have ever used it at all. Some of the other friends seem to be unacquainted with the way in which the Simplicity hive is designed to be used. In regard to propolis fastening the hives together, the Simplicity hive was never intended to be used so the bees could fasten the joints with propolis. The enamel cloth is to be fitted so closely that no bee ever gets above it with a load of propolis, therefore the cover always comes up as easily as the cover of a tool-chest. I am well aware, however, that very few take pains enough to keep the bees from filling these cracks

with propolis. In our apiary we use the Simplicity hive mainly for queen-rearing; and one great point in making the hive with beveled edges is to give us facility in handling them while empty—piling them into a wagon, for instance, tiering them up in a honey-house, or stacking them up outdoors, if you choose. They never slip or jostle, and do not tumble down or get blown off. Friend Hasty says they do not keep the water out any better than the square joints. My experience hardly agrees with him in this; and besides, if they don't keep the water out they certainly do keep the wind out better than a poorly made square joint; that is, unless said joint is filled with propolis, and we don't want any propolis at all to hold the cover on or to hold the upper story on. The only way we can change our method with the thousands of hives already in use, is to make them the usual way unless ordered otherwise than we have been prepared to do. Our books will show, however, that not one customer in a thousand wishes them made with square joints, especially if they have already commenced with the beveled joints. If we are going to use the stories in the shallow form recommended by friend Heddon, perhaps the square joint would be preferable, for the reasons that have been already discussed in our pages.

Question No. 5.—How much do you estimate it costs you per pound, in an average season, to produce comb honey? How much for extracted? If you can not say exactly, estimate as nearly as you can.

L. M. R.

Three cents for extracted honey. R. WILKIN.

About half a cent for extracted.

DR. A. B. MASON.

For comb honey, 8 and 10 cents. For extracted, 3 and 4 cents.

DADANT & SON.

For comb, 10 cents. I can not tell as to extracted, with my limited experience.

MRS. L. HARRISON.

As nearly as I could make it, I find that it cost me at least 3 cents per pound for comb honey, and 2 cents for extracted honey.

PAUL L. VIALLO.

According to the price of other commodities and of labor, both skilled and unskilled, I should say 10 cents for comb and 6 cents for extracted.

G. M. DOOLITTLE.

For comb honey, to put on the market, it costs me something like 5 cents per pound, independent of labor. If labor be added, the cost may reach 18 cents.

C. C. MILLER.

There is such a vast difference between seasons, different bee-keepers, and different locations, that I will not pretend to definitely answer this question in figures and amounts, nor do I attach much value to any number of attempted answers to it.

JAMES HEDDON.

The answer to this depends almost entirely on the estimate placed on one's own value, which deprives all such answers of much value to others. I could make a fair living in Iowa, raising extracted honey at 6 cents per lb., net, wholesale.

O. O. POPPLETON.

One of my intelligent bee-friends says that extracted honey costs 5 cents and comb 8, and that

all over that is profit. I feel that, from my own experience, I could hardly give an intelligent answer.

A. J. COOK.

We don't raise comb honey. As to the cost of producing extracted honey, see GLEANINGS for 1887, page 143, where I have given a detailed account of the cost for the year 1886; viz., 3½ cents per pound. But average last year with this, then this is about double last year's figures.

E. FRANCE.

I have always raised extracted honey in connection with queen rearing, or with comb-honey productions; it has come from odds and ends, hence I can not estimate the cost. I know exactly what it has cost me to raise comb honey, but I had a little rather not tell. It is a little too rosy-hued, and might cause an undue influx into the bee-keeping ranks. It has cost me less and less each year, too, as I have adopted improved methods and fixtures.

W. Z. HUTCHINSON.

Lumping it off at random, I say that in labor and cash supplies my comb honey costs me 10 cents per pound. By charging fancy prices for labor, valuing buildings, hives, bees, etc., at high prices, and computing interest at high rates, it would be easy to say that the honey costs me 20 cents per pound; but I'm not going to say that. We all know about the prosperous merchant who spends his life selling goods for less than cost, and dies worth a million; but it's just as comfortable to say we are making a living when we are. The point is, What would we be making at "that other business" if we gave bee-keeping up? And if we could sell our services for somewhat more, is not the comfort of being one's own master enough to turn the balance? Extracted honey, I produce too little of to figure on.

E. E. HASTY.

Question No. 6.—Is extracted honey that is artificially ripened, equal to that ripened by the bees?
G. A. R.

Not to my taste. W. Z. HUTCHINSON.

Almost, but not entirely. R. WILKIN.

Yes, entirely so, if properly done. A. J. COOK.

Most certainly so, if properly done. O. O. POPPLETON.

In my judgment it is not—nowhere near it.
JAMES HEDDON.

No. I have always found a perceptible difference in the taste. PAUL L. VIALLO.

Yes, when intelligently handled under right conditions as to air and temperature.

MRS. L. HARRISON.

It depends on the season. In a wet season, yes, and better; in a dry season, the bees are ahead.

G. M. DOOLITTLE.

Yes. We never ripened honey artificially; but if properly ripened, we do not see why it should not be as good. DADANT & SON.

I think not quite. Is the calf raised by hand equal to the one that sucks the cow? He may be made so, perhaps, but mostly he isn't. E. E. HASTY.

We have never used any artificial means to ripen honey. We don't extract until the honey is thick enough to keep well, therefore I can not say.

E. FRANCE.

No. Some of it, perhaps, is, and it is possible that one who knows his business may equal the bees.

C. C. MILLER.

I believe it is, very nearly; so near that I don't wait for the bees to ripen it. A specimen of it, shown at the last Michigan bee-convention, was pronounced "good enough for anybody" by Prof. Cook, T. F. Bingham, Mr. McPherson, of the *Canadian Bee Journal*, and others. DR. A. B. MASON.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: *Sheer Off, Silver Keys, The Giant-Killer*; or, *The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room*. We have also *Our Homes, Part I.*, and *Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

WIND AS A MOTIVE POWER; MORE LESSONS IN HANDLING BUZZ-SAWS.

THE next day the wind continued to blow, and the air grew decidedly cooler. In fact, it really felt cold, after the warm weather. The windmill was revolving at a fair rate of speed. The boys decided that, as other factories and shops started up at 7 o'clock, they would do likewise. Accordingly, promptly after breakfast they were on hand. It was agreed that Sam should saw. The night before, the two had taken up into the loft as many boards as they thought they would need for the day. These long boards (12 feet long) were piled up so as to be convenient to the saw-table. Jimmy held one end while Sam gauged the proper length of the boards, and held them square against the figure four, while the saw was cutting through. At first Jimmy and Sam quarreled somewhat. Jimmy complained that Sam was careless, and that he didn't hold the boards up square against the gauge. Sam, in turn, accused his companion of not doing his part correctly.

"How do you suppose I am going to hold the boards square against the figure-four gauge if you keep whopping your end of the board one way and then the other?" said Sam?

To make matters worse, they would get just about in the middle of a board, and

then the windmill would seem to stop and take a breath. At other times it would scold, and seemed to whine because its little masters gave it too much work to do. Finally they succeeded in cutting off a dozen lengths of boards, or such a matter, and then the windmill began to run, so slow that it was impracticable to cut boards. The boys, impatient to continue their work without interruption, were obliged to wait until another gust of wind came along.

"I tell you," said Jimmy, "it is a confounded nuisance to work this way."

"I know it is," said Sam, "but it is a good deal better than cutting off boards by hand. I wonder why the wind does not blow all the time. Off in the field there the wind seems to be waving the trees. There must be something wrong with our windmill. There is pa down there. Let's ask him what he thinks about it." While they were talking thus, Mr. Green came into the barn to see how they were progressing.

"Well, boys, you have made a start, have you not? Why aren't you at work now?" said he, as a twinkle gleamed in his eye.

"Say, pa, what is the reason those trees are waving their tops, and yet our windmill won't run?"

"I have just been thinking of this very same thing myself," said Mr. Green, "and I think I have an explanation for it. The wind is, as you notice, in a southwesterly direction; directly in range is a maple-tree standing in front of the mill. When the wind changes a little, I think you will not experience quite the same trouble."

"But, pa, yesterday, when the wind was directly in the west, the windmill had this fashion of humming a while, and slacking up and stopping just when we wanted to work."

"Suppose, boys, we get on top of the barn where we can observe matters a little more closely."

This proposition was no sooner put forth than it was put into execution. From the roof, Mr. Green mounted the short windmill-tower, in order that he might better detect the breeze.

"See," said he; "clear over yonder, some 300 or 400 yards, the trees are waving quite hard, and yet the wind is not blowing here at all, scarcely."

"That's so," chimed the boys. Very soon, however, the leaves rustled on the trees, and the windmill immediately commenced revolving at a pretty good rate of speed.

"Oh! I think I see," said Mr. Green. "There seem to be gusts of wind traveling along; and when you saw the trees at a distance from the barn window, waving, you saw one of these gusts coming up. Didn't the wind mill, soon after, commence revolving?"

"Yes," said Sam; "I now remember it did on several occasions."

The three then descended to the ground. Sometimes, when the windmill was going at a pretty good rate, they felt no breeze whatever. Again, the breeze seemed pretty strong, and yet the windmill moved not.

"There seems to be an upward and a lower current traveling," observed Mr. Green.

While they were thus talking, the wind-

mill started briskly; and the boys, eager to make use of the opportunity, ascended to the barn-loft, accompanied by Mr. Green. They cut a few lengths of boards, and then the windmill stopped as before.

"That is enough to make a fellow mad," said Jimmy.

"You must not expect," interposed their instructor, "that wind power is equal in steadiness to steam power or water power. We have already observed that there are gusts of wind that seem to travel about; and when one of these strikes the mill we have an abundance of power. In the intervals the mill may run very slowly and perhaps stop. Now, while we are waiting for more wind, suppose we remove the crosscut and put in its place the rip saw. Crosscutting is a little different from ripping; and while I have the opportunity I want to instruct you in ripping up frame-stuff, edging boards, etc."

"What do you mean by edging boards?" said Jimmy.

"I mean, making the sides of the boards at right angles to the ends which you have already cut off."

"Oh!" said Jimmy; "I see."

Jimmy proceeded to lift up the saw-table. He took up a wrench. He twisted and twisted, but the nut which held the saw in place on the mandrel would not stir.

"Wait a moment! you are turning the wrong way."

"Why, I am turning it just the way *all* screws are made, when you want to unscrew a screw."

"But you must remember," said Mr. Green, "that I told you that when you wanted to take off the saw from the arbor you must turn the nut in the opposite direction from which you are accustomed. In other words, you are dealing with what is called a left-handed screw. Turn the other way."

Jimmy did so and it slipped off easily. Instead of taking a wrench, as is customary, Mr. Green told Jimmy to take a hammer and strike on that side of the nut that will take the nut off.

"Yow see, if the screw on the mandrel were a right-handed screw, the saw would untwist the nut; therefore we are obliged to have a left-handed screw, the same as you will find on the left side of a buggy."

Accordingly, when Mr. Green slipped on the rip-saw he turned the screw "backward," as Jimmy said.

By this time the wind had started up again. In the meantime Mr. G. had removed the figure-four and adjusted the parallel gauge so that there was about a quarter of an inch distance between it and the humming saw. He next took up a board about a foot long, and shoved it through.

"Yes, that works very nicely," said he. He then raised the saw-table so that the saw just projected through this seven-eighths board, after which he sawed the board into narrow strips; but while cutting the strips he used the push-stick, such as has been previously described. Just at that moment a friend of Mr. Green came to see him, and he was called away. After he had gone, Jim-

my picked up a board and proceeded to cut it into strips, as did Mr. Green.

"That is just fun," shouted he, when he had ripped one or two strips. As he got about half way through the third strip, the wind gave visible signs of giving out; and before he could cut through it, the windmill stopped altogether. Jimmy withdrew the board, and impatiently waited for the wind to return. This time, however, he was not obliged to wait long. He had hardly got the board out before the buzz-saw began to hum in a low key, and then finally it reached its usual speed. As the board was not cut quite through, he changed ends so that the saw might meet its former cut. Sam noticed that Jimmy's finger was quite near the saw-teeth; and that when the saw reached the former cut the board was liable to slip by, endangering his companion's finger; but before he could speak, his fears were realized, and the other screamed out, "I am cut! I am killed! oh, oh dear!" as he saw the blood spirt from the end of his finger. It proved to be, however, only a flesh wound, for the skin had been cut through only enough to make his finger bleed profusely.

"I was just going to tell you," said Sam, "that you were liable to cut yourself there."

"Well, why didn't you, then?" moaned Jimmy angrily. "You are a pretty fellow, you are, to let a fellow get cut in this way."

"The fact is," said Sam, endeavoring to justify himself, "I tried to tell you just as soon as I could; but it seemed to me I could not get it out in time."

Mrs. Green, hearing Jimmy's first scream, came over to ascertain what was the matter. She looked at the wound, and pronounced it nothing serious. She quickly wrapped it up in rags, and told the boys they had better not do any more that day, as neither one of them seemed to be in a very good mood.

"You ought to be thankful," she continued, "that you were hurt no worse. You might have lost your finger, or two or three of them. I don't know, but I can not think it is wise for you boys to try to do any thing with buzz-saws."

"O yes, ma, it is," said Sam; "we won't get cut."

That evening Mr. Green inquired how it was that Jimmy was cut. In the first place, he discovered that Jimmy had omitted to use the push-stick. This, he had forgotten. Jimmy, however, was inclined to lay the blame on Sam, because he didn't speak quicker.

"I have been in just that predicament myself," said Mr. Green. "I find that it takes time for mind to produce a sensible effect upon the nerves. Sam probably saw what was about to happen; but he found that, before he could cause his vocal organs to give the alarm, the mischief was done. It is not definitely known how long it takes the mind, in conjunction with the human frame, to result in action. But repeated experiment has shown that it takes an appreciable time. Sam, under the circumstances, therefore, did the best he could. A buzz-saw, you know by this time, Jimmy, will not wait for boys to get out of the way."

JUVENILE LETTER-BOX.

1300-LBS. OF COMB HONEY FROM 60 COLONIES.

This is my first letter to you. My papa is a Christian preacher, and keeps bees. He has 60 colonies. We keep supplies of all kinds. We took about 1300 lbs. of comb honey. It has been very dry since the first of July.

OREN HUMMEL.

La Fontaine, Ind., Aug. 18, 1887.

HONEY FROM SUMAC.

My brother has eight bee-hives. The bees are getting honey from sumac. It is very dry here now. My brother uses the Simplicity hives. When more than two stories are used he puts the new hive next to the bottom. I am anxious to know how Jim and Sam are getting along with their bee-hive factory.

WM. MORGAN.

Belton, Tex., Aug. 14, 1887.

HONEY FROM IVY, ETC.

My pa has seven swarms of bees. My uncle wintered them for us, as we moved to town last winter, and we could not take them very well. Bees are not doing much now. They have been making a little honey from sourwood and ivy. I do not like ivy honey. It makes me sick. I am much interested in Sam and Jim's bee-hive factory; also how they got along with their buzz-saw. I like to read the juvenile letters, also the many other interesting and useful letters.

ERNEST B. HUGHES.

Pipestem, W. Va., July 29, 1887.

MAGGIE'S POETRY.

Papa has 45 stands of bees. He has more bees than any one else in the neighborhood. Our next-door neighbor, Mrs. Lowden, had one stand of bees at first, but papa kept increasing until she has four stands of bees now in good order. We have taken off quite a lot of honey. Everybody in this valley is afraid of bees except papa, so he has to take care of them all. Mamma always helps papa take care of his bees. Here are some verses I wrote:

Hear the little bees,
Working all the day,
Sipping honey from the flowers
That grow along the way.
We should love the little bees,
And treat them very kind,
For they have children great to hear,
For such a little mind.
We go into their little homes
And rob them of their honey,
And take it to the city
And trade it off for money.

MAGGIE JONES, age 10.

Walla Walla, Wash. Ter.

SWARMING, AS REPORTED BY CLARA.

Our apiary is situated between two hills and near a swamp, and within half a mile of the Harford fair-grounds. Papa's 16 swarms of bees have increased to 32. One of the first swarms that came off came out and alighted down in the swamp. Papa went and brought them up and hived them, but they went back into the old hive. The next day he was going past there, and he heard some bees. He looked up in the tree and saw about two quarts of bees that he had left the day before. He brought them up and put them into an empty hive and put a frame of brood into it. When he brought it up he supposed that the queen must be with them; but a large swarm came from that same colony the next day. He then put them in with the two quarts of bees.

Papa has had but one second swarm this year

that he had to hive, and that came out one Saturday for the first time, and they went back; but they came out Sunday again, and he put them back into the old hive. They stayed that day, but they came out again Monday, and he put them into a new hive, but they would not stay. They went back into the old hive again. Tuesday they came out again. He put them into the new hive, and put a frame of brood into the hive, and they stayed. They did not alight in the same place any of the four times; and the last time they swarmed they alighted on the corner of a fence. We had one swarm that came out just as a hard shower was coming up. It had commenced raining before they had all got out, and it was raining quite hard before papa had them hived. It was the hardest shower of the season. We had another colony that did not swarm until two or three days after papa knew that the queen-cell was sealed.

Papa has taken off 510 lbs. of white honey, and has extracted nearly 80 lbs. One day he had a couple of queens that hatched from the newly cut-out queen-cells. He had a couple of colonies that had just swarmed, and he thought he would let them run in at the entrance. He made a mistake, and let them both run in at the same entrance. A day or so afterward he was looking for them, and found one of them in front of the hive.

Harford, Pa.

CLARA B. LINDSEY, age 11.

THE SEASON OF 1887.

SOMETHING FROM OUR YOUNG FRIEND CHARLIE L. GREENFIELD.

MR. ROOT:—As the honey season has long been past, I will now send in my report for 1887. This season was the poorest one for bees ever known here. Bees came out of winter quarters in fine condition. The maples came in bloom March 6th and the bees began work on them quite lively, gathering honey as well as pollen. The first part of the season up to June was cold, cloudy, and breezy, with only occasional warm spells, and the nights were quite cool. Consequently all this time bees made but a living. Then white clover opened up and I never saw as heavy a crop of bloom. But for all that, it contained but very little honey. The bees worked on it some, slowly collecting honey, and in course of time most of the hives were fairly supplied. Basswood opened up in a dry time, and did not last long. Not more than one-third of the trees produced bloom. All of the bees raised drones early in the spring; but buckeye bloom stopped suddenly, and all the drones were killed. Immediately after they were killed, locust began blooming, and a second lot was raised. We did not have a swarm this season, and we did not get much surplus. After basswood closed, a few scattered wild flowers kept the bees in honey for brood-rearing for a while, but they soon quieted down. Then came the long scorching drought of several weeks, during which time the bees did nothing. At present, all of the bees are gathering immense quantities of pollen, and a little honey. All of our colonies are very strong, and are raising brood heavily. Although nearly September, two colonies have drones flying strong. These drones were hatched out lately, and were reared during the drought. The bees show no tendency to kill them. The hives are populous, and

have good queens. I never saw bees less inclined to rob than this year. I rarely ever see a robber prying about. I have done lots of feeding lately in the day time, and have examined hives in the middle of the day, but never had a robber to bother.

BEES STEALING EGGS.

In the spring we had one weak colony that remained so throughout the season. It had a queen, and raised brood right along; but owing to the poor season it did not increase much. It no more than made a living all summer. In June I looked into it and saw some sealed brood. I did not look at it again until the last of July. Then I examined it. There was no queen in it, nor any brood or eggs. There were two queen-cells containing larvæ. With the exception of these two larvæ there was not an egg nor any brood in the hive. In due time the queens were hatched. Now, the question is, Where did the eggs come from? I do not know of any way that they could have obtained them, only by stealing them from some other hive.

BEES DYING AROUND HIVES IN JUNE.

Along in June, several swarms suddenly began to die. The bees would crawl out and die on the ground in front of the hives. I examined them, and found them all to be as I supposed, young bees, because all had a clean bright appearance, and all had perfect wings. They were all of their natural color and size, and not one thing could I see wrong with them. In the morning they would be scattered around the entrance. Of nineteen colonies, about half were affected. I have seen the black, shiny, nameless-diseased bees, but not one of these was black. They were not dragged out, but they crawled out of their own accord. It was not starvation, for they had plenty of honey at the time. They died for about a week, and ceased as suddenly as they commenced, and I have never seen a trace of it since. What do you suppose was the matter?

Somerville, O., Aug. 28, 1887. C. L. GREENFIELD.

Friend G., in regard to bees stealing eggs, I would suggest that the queen failed gradually; that is, she laid fewer and fewer eggs, until finally she laid only one or two a day. These last one or two, the bees used for those queen-cells; therefore you discovered there were no other eggs in the hive. In regard to the young bees that came out and died, I have seen something of the kind, but I don't know that I can offer any explanation, unless it is that the dearth of honey might have caused them to neglect giving the larvæ the proper amount of nutriment, therefore they were so enfeebled they died before they were able to fly. This might have happened because the bees were out of stores, say not more than 24 or 48 hours, just at a time when these young bees in the larval state needed food. I once cut a bee-tree in the woods, where not a drop of honey of any kind could be found in any of the combs. The bees had been living from day to day on the honey they obtained from the feeder in our hunting-box; and as we were a week or ten days in finding them, they had probably been destitute of stores for that length of time. Of course, they had not a particle of brood. Now, had they tried to rear brood under such circumstances, I can readily imagine the young bees might be so feeble they would never be able to fly.

OUR HOMES.

The blood of Jesus Christ cleanseth us from all sin.—1. JOHN 1 : 7.

Ye must be born again.—JOHN 3 : 7.

THE question is continually arising, "What does Christianity do for a man?" A good many whose attention is called to the matter reply, "How much does it amount to, any way? How much different is the man who is a Christian, from anybody else? Is it really of any very great consequence?" The friends who love righteousness, no doubt feel hurt and chilled by such expressions as these; but they are continually coming from the world, and those who treat lightly the subject of Christ's claims upon us are all continually demanding that we prove to them that there is a reality in the religion of Christ Jesus. They often say, "How can you prove to us that it amounts to any thing more than these various other things that come up? Various societies urge the importance of their special organization, and what has Christianity to offer more than a thousand and one other things?" In other words, the world insists, or, at least, a great part of the world, that Christianity is on a level with ever so many other things, and that there is no particular need that it be the all-absorbing topic.

Skeptics and infidels, however, often understand and acknowledge our claims, but they declare the facts don't prove it. At a temperance meeting some time ago, the matter of gospel temperance was under discussion. Some of the unbelievers of our town, who are friends of temperance, demanded a non-partisan temperance meeting. They wanted to attend and take part, but they objected to gospel hymns and prayers. A smart lawyer, who seemed their leader, expressed himself something in this way:

"Some of us who have not had our 'sins washed away' are interested in the temperance reform, and wish to help the matter along."

When he spoke about sins being washed away, he made a somewhat comic expression with his face, and glanced around at the professors of religion, expecting them to smile at his witticisms. Some of them, perhaps, did smile; but my good old mother, who was present, didn't smile. In fact, she had never heard such talk, and was so much pained that she declared she could not stay where such language was used. In thinking the matter over, however, it has occurred to me that there was a good rebuke in the lawyer's words, for many of us. I wish to say, however, that few Christians of my acquaintance have claimed that their sins are all washed away, in the sense in which the lawyer used it. We do claim, and we have a right to claim, that a free pardon has been granted us, for sins committed before we enlisted in Christ's service; but we do not claim that our lives are sinless or spotless. We are but dust after all—even as the Psalmist says, "He knoweth our frame, that we are but dust." But even though this be true, I do think, dear friends, that

we are all of us a good deal more "dusty," as a former pastor of mine used to express it, than we need to be. The blood of Christ does cleanse from all sin, as our text declares, providing our trust, our whole trust, is in Him who died that we might be cleansed. I do not know whether or not Christians will be graded or classified in the great unknown future; but I am compelled to admit, that there are many grades of Christians here in this world. And while I admit this, I am also compelled to acknowledge that there are but very few, comparatively, who reach the high Christian attainment that is open to us all. There are thousands of church-members who seem to be, judging from such glimpses as we get of them in their every-day life, but little more than church-members. Now, lest you think I am going to find fault with others, I will come nearer home, and say that I am afraid that a good many see nothing in me nor in my own life, particularly indicating that I am any thing more than simply a church-member. In saying this, I do believe it is a grand thing to be a church-member, if nothing more; that is, it is a great thing to let your life show to the world an absence of any thing wrong, or any thing that would be derogatory to a professor of religion, even if it does not show much on the other side; that is, a negative sort of religion is better than none at all. But, my friends, a real, live, bright, active religion is better still—a religion that carries praise with it as well as prayer, and this, overflowing day by day and hour by hour with the joys of the Christian's hope.

When we enter Christ's service, we ought to be different from what we were before, and in one sense we ought to be different from other people. A change should be recognized in us at once, and it should be so great that our friends recognize us as different persons. Christ said to Nicodemus, you may remember, "Ye must be born again," indicating that the change from the worldly man to the follower of Christ should be so great that it would be in reality a true and new birth. I am sure it is our privilege to show to the world a greater change if we would. We ought to be growing in trust and growing in grace. We ought to be making practical applications of the words of the Master whom we follow, every day and every hour.

A few days ago a young man whose life has been remarkably free from fault, and who, in fact, seems to be free from *any* of the temptations that beset the rest of us, for almost the first time in his life got entangled in a worldly matter. I should say, he got into a *quarrel*, but I am afraid, now, he would hardly be willing to admit it. I hope, friends, you will excuse me for saying that, in one sense. I felt a little glad to know that he had got into a quarrel, for I wanted to see him use his weapons, and test them fully. Here in our factory we have got some fire-extinguishers. Before I purchased them I saw them tested on a bonfire in our public square. They worked splendidly on a make-believe fire. Well, since then I have been somewhat anxious to see a real fire—

just a little one, that I might test my skill and test the extinguishers. I want to try our weapons. Now, mind you, I don't want anybody's house to get afire; but if it does get afire, I am going to try hard to be on hand promptly with our new weapons. In the same way I was glad to be on hand when my young friend had become really entangled in a live neighborhood quarrel. With a little encouragement he would talk by the hour about the evil disposition of his opponent. He said nobody could get along with him—not even the person's own relations; and although he is naturally remarkably cool and level-headed, I could not but smile to see him get really excited about a matter that was trifling and unimportant. By a little questioning, I perceived (at least I thought I did) that his state of mind was the result of having dwelt on the subject a good deal. Judging from my own experience, I should say he had wasted enough valuable mental strength and time on this foolish matter to have written a tolerably good-sized book. In fact, had the whole subject been arranged and classified, he might have dictated to a shorthand writer a volume; and his whole heart and soul were so taken up with it, I think he would have done it eloquently. And this reminds me that I once heard a great city editor, who had got into a similar quarrel with his own brother, speak about publishing a book to show to the world his own brother's sins and weaknesses. I do not know but that he calls them crimes. Now, just think a moment of a man sitting down to write a book to tell the world how bad his own flesh-and-blood brother is! Does not this single point illustrate to what lengths Satan may carry a person, if he does not watch and pray against it? Well, after I had talked with my young friend, and drawn him out quite a little in regard to the matter, I suggested to him that he try Christianity. He replied at once that it was of no use, and to the effect that it would be like casting "pearls before swine." How exceedingly natural it is to take this ground! Did you ever stand there, my friend? I cautioned him, and replied that it was certainly his duty to test Christ's teachings, and then I commenced repeating some of these wonderful texts that strike right squarely and directly on such troubles. Perhaps my texts were not the best ones I could have chosen, if I had had a little more time, or with the Testament right before me. But I was astonished and surprised to see with what wonderful force they struck. When the contents of the fire-extinguisher were turned on to the bonfire, exclamations of surprise came from the crowd, to see that great roaring, scorching fire subside and vanish in an instant. Christ's words seemed to have much the same effect on this young friend's state of mind. I was pleased, and said inwardly, "Thank God to see him stand the fire of these texts so well." Even though Satan had, for the time being, led him a little out of the straight and narrow path, the true metal was there still; and instead of evading or avoiding the issue, he bowed at once before the sublime words,

even as did poor Thomas, when his doubts were removed—"My Lord and my God." I think the first text I quoted was:

"But I say unto you, love your enemies."

He looked at me in silence, but I could see that he felt the application. Then I repeated:

"Do good to them that hate you."

This time he took a little courage, and made something of a defense.

"Why, I have tried, over and over, to do him kindnesses;" and then he went on relating the different times in which he had done *more* than his part, and had been more than generous. Satan was getting a little hold on him again; and, my friend, whenever he gets up to recounting a list of our good deeds and generosityes, it is Satan, you may be sure. But when I added, "Pray for them which despitefully use you," he had nothing to say. Quietly I asked:

"Have you really been praying for this individual?" With downcast eyes and humble voice he replied:

"To tell the truth, I have not."

Perhaps you may think, dear reader, that this was bearing on rather hard, especially with a young Christian. But this young friend knows me so well that I am sure he didn't think I meant to set myself up as one free from like sins. In fact, I think he knows full well that my life has been a constant succession of such conflicts. If you think, dear friends, that it is easy and natural for me to pray for one who has wronged me, you are greatly mistaken. We admire this 44th verse of the fifth chapter of Matthew, when applied in a general way, or when held off at arm's length; but if you have not tried it, my friend, just wait until you get greatly stirred up because somebody has deliberately and purposely abused and wronged you; and then while you are stirred up, go off and try to pray for them. I have tried it, and I know what it is to have Satan say to me, "Why, you silly fool, you can not pray for that man, if you try. It is not prayer at all—it is only a sort of despicable hypocrisy. Far better stand up like a man, and assert your rights."

Did Satan ever address you thus, my friend? If so, don't let him swerve you from the path of duty a particle. Just say, "Get thee behind me, Satan," and then put your whole trust in the Lord, and be not afraid.

Some one may ask, "Is there not such a thing as carrying this too far, and letting people run over you?" To which I reply, I am sure there is not, if you use good ordinary common sense. Bear in mind, we are considering difficulties with our neighbors—with such people as are to be found by the score in your neighborhood and in my neighborhood; or, if you choose, with just such people as you and I are. Some of our greatest and best minds have been so diverted by trifling personal quarrels as to spend time enough upon them to have given us books that would have been a blessing to humanity and the world; and I have sometimes wondered if there was ever a great man or great woman who lived so close to the Savior day by day and hour by hour as never to have

wasted any precious moments in this sort of folly. If you are dealing with a highway robber, or a man bent on committing crime, it is quite another thing. It is right for you to pray for the burglar who gets into your house at night, and it may be right for you to take his life while you pray. I do not think that any of Christ's words mean that we should practice non-resistance where we are dealing with men who have deliberately decided to commit crime.

Now, before closing this paper I want to give you another illustration of the way in which the blood of Christ cleanseth from *all* sin. I want to tell you a little story that I tried to tell you once before. The reason why I tell it again is because it applies so completely to this question often asked—Can a thoroughly bad man—a hardened criminal, for instance—be reached so as to make him over into a thoroughly good man and a Christian? Some ten or twelve years ago a man in the neighboring town of Akron robbed the American Express Co. of a very large sum of money. If I remember correctly, the sum was about \$16,000. I know but little of this young man's early history, but I take it for granted that he had been for years in Satan's training, and had become intemperate, reckless, and dissolute, and all these things. No one commits a crime like this unless he has had years of practice, and gone down by gradual steps. He was smart and shrewd—in fact, so much so that nothing could ever be proved against him. After a long and expensive trial he was acquitted, and the express company gave it up in despair. After the trial was over he was free to go where he pleased, and to indulge to his heart's content in all that this world can furnish; that is, so far as things go that can be purchased with money. I do not know that he ever found satisfaction and happiness in paying out his ill-gotten gains or not. It was about the time of Moody's successful work in Chicago; and although hardened criminals seldom go to religious meetings, for some reason or other this young man followed the crowd to hear Moody. Perhaps out of curiosity, he thought he would see what this man who was making such a great excitement had to offer. Perhaps, to his great astonishment, he heard of something that God has in store for his children, that money will not buy. Under the influence of God's divine Spirit, Moody's eloquence touched the heart of even such a hardened sinner as this one. I can imagine that he, may be for the first time in his life, got just a glimpse of a human life devoted to Christ and his service, instead of to self and the gratification of selfish desires. He remained after meeting, among the inquirers, and finally confessed to Mr. Moody his crime, and asked him what he should do to be saved. Mr. Moody, as a matter of course, told him to carry back the stolen money—at least, what there was left of it.

"But," said our friend, "I should be at once arrested and sent to prison."

"And that is exactly where you want to go," replied Moody.

"No, I don't," replied the stranger.

"Then you must go back to Satan and his service; for the only road to salvation for you is to make restitution, and submit to the law."

I can imagine that a long talk followed. Our friend was slowly groping out of the darkness into light. He was counting the cost. I tell you, my friends, it would be a good thing for us if we would count the cost a little more than we do sometimes. Christ said, "Which of you, intending to build a tower, sitteth not down first and counteth the cost, whether he have sufficient to finish it?" The end was, that he promised to go home and give himself up. Moody electrified the audience one evening by telling them the simple story, so far as I have told it, and remarking at its close that the young man who committed the crime was then present in the audience. When the time came for him to start home, he went to Moody, a good deal disturbed, and declared that he could not go back home and give up the money, unless Moody himself would go along with him. Moody replied:

"I can not go with you, my friend, and I don't need to go. The Lord Jesus, whom you are now trusting, will be with you and strengthen you. While he is with you, Satan can not get you off from the track. You will not turn coward, and desert, for I will pray for you. Follow straight in the path of duty—give yourself up, pay the penalty according to the requirements of the law, and peace in this world, and eternal life in the world to come, are before you."

Under the inspiration of these kind words our friend went forward; and every step he took toward the right, encouraged and strengthened him to take the next step. The old self was dropping away. His selfish passions and selfish purposes were dying a natural death. The old life was dead, and he was entering upon the new birth, even as the words of our text say. The words to Nicodemus, when he came on that visit by night, were true—"Ye must be born again, if ye will enter the kingdom of heaven." Is there any more beautiful or encouraging sight in this wide universe than that of the new-born Christian?

Our friend went back to the express office where he had been employed, and handed over the money. Those who had fought him in the lawsuit were aghast with astonishment. Like the disciples of old, they doubtless said within themselves, "What manner of man is this, that not only the winds and the seas obey him, but by his words the thief who has evaded justice comes back and restores the stolen property?" After he convinced them that he took the money—that is, if any evidence were needed—they were still more astonished to hear him demand that he be sent to the penitentiary, and punished as the law directs. Such a thing was unheard of; and when the officers of the law, after investigation, declared that one who had been tried and acquitted could not be punished, our friend looked disappointed and troubled. No doubt the world called him crazy; but, my friend, the best common sense that ever shone forth from human eye was in his

heart then, when he wanted to go to prison. If I remember correctly, he wrote back to his friend Moody. How natural it is for us to cling to those who have been instrumental in leading us from death to life! Moody told him to ask them to send him to the penitentiary for perjury. A new trial was instituted, and this time the *criminal* helped to bring witnesses to prove himself guilty. Crazy again, say you? Not so, my friend. The sunshine of God's free love was round about him. What cared he for earthly applause or for earthly pleasure? What cared he for prison walls and iron bars? The light of heaven, and the peace that Christ can give, were his; and with happiness in his heart, and a joy pervading his whole being, that fall to perhaps but few mortals, this penitent thief went his way to prison. He was a new man, with new tastes, new aspirations, and new joys. Who could for a moment recognize him as the hardened, guilty criminal of but a few months before? Do you still feel like saying, that men and women may be hardened by sin and crime so far they can not be made over and cleansed by the blood of Christ? If so, I would refer you to hundreds in the city of Akron, who can tell you the circumstances of all this little story more faithfully than I have told them. As a matter of course, he was kindly treated in the penitentiary. Instead of being received as a convict, he was received as a man and a gentleman—nay, even as one of God's noblest works. An easy berth was given him, and no doubt he felt like complaining that they did not punish him according to the full letter of the law. What a sad contrast this is to the story some tell who come from there, of the indignities and the hardships they endured. I always feel troubled when I hear a returned convict complain of the treatment he received, instead of saying he was treated ten times better than he deserved. A few days ago I told this story at our noon service; and at the time I did so a gentleman was present who lives in Akron, and knew the young man well. He said I got it right in every particular, so far as he could remember. The offender is dead now, but he died with that new-born hope in his breast—died, doubtless, rejoicing as he lived the remainder of his days—rejoicing in that full and free pardon, and in the fact that the blood of Christ is indeed able to cleanse even the most hardened and corrupt from *all* sin.

TOBACCO COLUMN.

A KINDLY CRITICISM IN REGARD TO OUR TOBACCO COLUMN.

I HAVE been reading your Tobacco Column (call it tobacco pages) from the beginning. I feel like protesting a little at the enormous "cheek" manifested by some. For instance, "I began the use of tobacco three years ago, for the purpose of smoking bees, but," (hark at that!) "I found it injurious to my health, and I quit the use of it. If I am entitled to a smoker," etc. You surely did not send this man a smoker, for he was

compelled to stop on account of his health. Also the very next appeal is for an "Uncle" who quit seven months before, and who, no doubt, never heard of a smoker or your offer, but stopped for reasons best known to himself, and is now thrust forward to receive his reward for the self-sacrifice—a sacrifice which your "column" has not a thing to do with, as I understand it. As I understand the "column," those who read your offer, and will take advantage of your liberality, and eschew (and *not* chew) the weed (thus securing a smoker "without money and without price"), are the only ones entitled to a smoker.

A man who says, "I will stop the use of tobacco if you will send me a smoker," is entitled to your consideration; otherwise, as in the above two cases native sense is lacking, and a smoker doubtless thrown away. Note the language of S. C. Stone, page 634. There is hope of reforming him from the habit. Then notice another one on the same page, who, after more than three years have elapsed, swoops down, and grasps a smoker which would have been worn out had he received it when justly entitled to it over three years previously. I am as justly entitled to one, because I quit smoking 18 years ago, and I faithfully promise that I will never use the weed again. If I do, I will pay you for the smoker. I have several on hand, so you need be in no hurry about sending it.

W. M. YOUNG.

Nevada, O., Aug. 23, 1887.

Friend Y., there has been a little looseness, I admit, in regard to this matter of giving smokers to those who give up tobacco; but as the column is starting a great wave in the right direction, it seems to me we can not afford to seem to be small in the matter. But it is true, some of the friends have received a smoker for quitting a great while ago. By this act they become one of the great anti-tobacco band, and swell the ranks; for he who puts his name in print becomes a worker against the evil. I think, however, since you suggest it, that we had better say in the future, that smokers are only for those who give up tobacco because of having seen the Tobacco Column. We shall always be glad, however, to get testimonials from those giving it up because it was injurious to their health. If they have been benefited in health by dropping it, they surely ought to be willing to help others by standing up and testifying.

I need a smoker, and will stop using the weed if you will send it to me; and if I ever take another chew, or smoke, I will send you the cash.

E. A. BOAL.

Berrien Springs, Berrien Co., Mich., Aug. 16, 1887.

If you will send me a smoker I will quit chewing tobacco, or using it in any form; and if I fail I will pay you for the same.

M. R. W. PERRY.

Goodman, N. C., Aug. 9, 1887.

I have quit using tobacco. If you will send me a smoker I will pay you for it if I ever use the weed again.

T. L. CASE.

Lebanon, Mo., Aug. 13, 1887.

Below I give you the names of three friends who have quit the use of tobacco through the influence of GLEANINGS and my persuasion, and I ask for a smoker for each. If they use tobacco again I will

see that they pay for the smokers. They are Willie Weisenhunt, George Book, T. D. Page. If it is against the rules, or any thing wrong, I do not wish it.

W. W. ADDISON.

Bumpus, Ill., Aug. 9, 1887.

I shall make up my mind to drop the use of tobacco, if you will send me a smoker; and if I ever commence to use it again I will pay for two smokers.

LONZO MOSES.

Loretto, Minn., Aug. 3, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THOMAS WILLIAM COWAN.

THE editorial in reference to Mr. Thomas William Cowan, editor of the *British Bee Journal*, had hardly appeared in last GLEANINGS before the following card from Prof. Cook announced a proposed visit from Mr. and Mrs. Cowan:

My dear Mr. Root:—

Mr. and Mrs. Cowan arrived last Friday. They will leave here for your place some time next week. They are delightful people. I am enjoying them immensely. I am sure you will. Mr. C. is a very modest man, and yet I doubt if there is a man in the whole world who has such a literary culture in regard to bees. He reads most of the modern languages, which gives him a vast advantage. You may look for a treat.

A. J. COOK.

Agricultural College, Mich., Aug. 30, 1887.

Knowing that Mr. Cowan had made the study of foul brood, as seen under the microscope, a special study, I felt quite anxious to see him. Accordingly, having received a card from our distinguished visitor announcing the exact date when he would be here, I went over to the train, accompanied by Huber, followed shortly afterward by "his pa." "How will you know the gentleman when he steps off the car?" asked the eldest of the three Roots. "Know him!" I rejoined, "I feel sure I shall be able to pick him out, for I have seen a fine portrait engraving of him in the *Deutsche Illustrierte Bienenzeitung*, edited by C. J. H. Gravenhorst." Nothing further was said. Finally the train arrived, and, sure enough, I saw our friend step on to the platform, accompanied by his wife. I did feel some little hesitancy in addressing by name one whom I had never seen; but when I saw a large box, perhaps two feet high, and about a foot square (which I took for granted contained the large microscope), I stepped forward, and, touching the shoulder of the possessor of said box, said, "Mr. Cowan, I am very happy to meet you." I then met Mrs. C. I immediately informed them who your humble servant was, and then introduced them to the eldest and youngest Root. Together we started for the paternal mansion. That evening we discussed American and British apiculture.

Perhaps before we proceed further it may be pertinent to tell our readers more exactly who Mr. Cowan is. First of all, I will say that the whole Root family concurs heartily in all that Prof. Cook says in his card as

above. After a little talk and personal acquaintance, one can not help recognizing that the editor of the *British Bee Journal* has rare abilities. He is acquainted with almost every thing that has been written on bees, whether of the present or of the past. He is the possessor of one of the largest libraries exclusively on bees, in the world, some of the volumes being very old.* As he is able to speak in many of the modern languages, this library is something more to him than mere curiosity. He is well acquainted with the scientific investigations of the past pertaining to bees, and, guided by this, he is the better able to direct his own investigations. Aside from the field of microscopy, to which Mr. Cowan has given so many years of careful study, he has devoted considerable attention to geology and botany; in fact, we found it was quite difficult to find a plant of any kind that he did not know the name of.

In consequence of the senior editor's inability, resulting from ill health and the press of business, to entertain visitors, however distinguished they may be, I devoted my whole time to Mr. Cowan, for I felt that the opportunity was too rare to lose any of the advantages which I might obtain from his company; therefore I was with him the greater part of two days and two evenings. As the subject of microscopy used to be one of my favorite pastimes, I now felt the old enthusiasm well up as I began to talk with a man who had spent more or less of forty years in this interesting study. Accordingly, the next day he was solicited to show us his microscope and microscopic slides. When brother Jones, of the *Canadian Bee Journal*, stated that Mr. Cowan was the possessor of one of the finest, best, and most expensive microscopes in the world, I felt somewhat doubtful as to whether the Canadian editor was fully competent to decide what a good microscope is; but when our visitor drew his instrument from its box, and showed me the accessories, I was doubtful no more.

It may be interesting to some who have a partial acquaintance with the subject of microscopy, to describe briefly his instrument. It is a binocular, after the Beck pattern. It has a coarse and fine adjustment, substage, and a mechanical arrangement for moving the slides. It has several of the best eyepieces. In addition to these there is a nice assortment of the very finest objectives that can be obtained anywhere in the world—a 3-inch, 1-inch, $\frac{3}{4}$ -inch, $\frac{1}{2}$ -inch, $\frac{3}{8}$ -inch, $\frac{1}{4}$ -inch, and $\frac{1}{8}$ -inch. I presume that none of these latter could be obtained for much less than fifty or one hundred dollars in this country. More than this, he had a spot-lens, parabolic reflector, condenser, and polariscope. The whole instrument, including the accessories, would probably cost from one thousand to fifteen hundred dollars. As one views the microscope, and admires its beauty, he is greatly astonished to learn that the whole microscope, excepting the lenses was made by Mr. Cowan himself. I should judge that, if he were able to

* In order to give our readers an idea of Mr. Cowan's investigations in bee-lore, we would ask them to read an article from his pen, on page 446, 1884.

make such a beautiful instrument, it would not tax him very hard to be able to make the lenses. No one less than a mechanic of the highest order could execute such a piece of work.

The second evening, Mr. C. drew out his microscope and his collection of objects, nearly all of them mounted specimens of the different parts of the bee. I thought I knew something of the anatomical structure of our pets, and I thought my lenses and apparatus were quite sufficient for showing clearly their tissues and their structure; but when I looked at the same specimens prepared by himself, with the light from the parabolic reflector, I must confess that I never saw any thing quite so beautiful, so distinct, and so well defined. The most minute portions of the bee could be viewed as easily as you would trace and examine minutely the structure of your hand. At the time we had our Microscopical Society here in Medina, my instrument was counted one of the best; but when I viewed the same objects through my lenses—well, I just wanted a better microscope, to put it mildly.

Perhaps all this microscopic talk is not so interesting to our readers who have never had a taste for such things, or even an opportunity had they desired it, and so I will hasten to the microscopical appearance of foul brood.

BACILLUS ALVEI: IS THE FOUL BROOD OF AMERICA DIFFERENT IN ANY PARTICULAR FROM THE FOUL BROOD OF EUROPE?

Inasmuch as some authorities disagree as to the real nature of foul brood, its source, and method of cure, it has been suggested a number of times that the foul brood of America may be somewhat different from that which is found in Europe. Again, it is asserted that there is a mild and a malignant form of the disease, and that apiaries may be attacked by one or the other, or both. From the descriptions which I have read, and the symptoms which I have compared of foul brood as found in the different countries, I have been loth to believe that there are several phases of the disease. On the contrary, I felt pretty tolerably certain that there was only one kind of foul brood, and that that kind was as malignant as any one could possibly expect.

One of the things which I was very anxious to see under Mr. Cowan's microscope was the bacillus alvei, the scientific name for the germs of foul brood. I was particularly desirous of seeing the microscopic germs of the disease as it is in our own apiary, with a view of determining whether it was similar or dissimilar from the bacillus alvei of Europe. We first examined some prepared slides which Mr. Cowan brought with him—a $\frac{1}{2}$ -inch objective being used for the purpose. After having battled with this microscopic enemy for so long, and never having seen the actual thing itself, it was with no little degree of pleasure that I looked at the thing which has been talked about so much and so much discussed. Had I been working by myself with all the necessary apparatus, I should not have been at all certain; but with Mr. Cowan right [there

to tell me that what I was looking at was really the bacillus alvei, I felt satisfied, intensely so, for once in my life. Perhaps some of the readers may imagine that these germs possess form—have legs, eyes, and all that sort of thing. If they do, I must say they are very greatly mistaken. On the contrary, the bacillei have the appearance of a lot of miniature walking-sticks lying together here and there in the field of view. When I say "miniature," I mean they were small, or appeared small, even when magnified 3000 diameters. In the field of the microscope, at this power, as nearly as I could recollect, they appeared to be about an eighth of an inch long, and about as large around as a human hair. I am sorry we have not a good engraving representing them, but we hope before many days to give our readers a view of these peculiar "animals." Having examined the bacillus alvei of Europe to my heart's content, I hunted up a frame of foul brood, placed it in a close box, and presented it to Mr. Cowan. He examined the frame as well as the matured mass in the cells, and pronounced it to be the same as he had seen and experienced in his own apiary, as well as in the apiaries of others.

For the benefit of our readers interested in microscopy, I will give Mr. Cowan's modus operandi of preparing a specimen of foul brood, to be examined under the microscope.

He first called for a clean slide (a slip of glass one inch by three inches), and also for a very thin cover glass, as thin as this paper. These I supplied him with. He then dipped the point of his penknife into a diseased cell, drew it out, and placed it in the center of the glass slide. After spreading it he placed the glass cover over it and pressed it gently, in order to get all the excess of matter out at the sides. To make the bacillus alvei show more plainly, he next placed a drop of aniline ink at the edge of the covered glass—an operation called "staining." The ink, by capillary attraction, soon spread all through under the cover glass. The specimen as thus prepared was placed under his $\frac{1}{2}$ immersion lens. Examination showed that the germs which we saw were bacillus alvei, exactly like those we had just seen in a prepared specimen of foul brood from Europe. Mr. Cowan then prepared other slides in the manner I have described, and in all cases the bacillus alvei were seen.

I can scarcely think there is any possible doubt but that we have the very same foul brood that is found in Europe; and all the talk that we have had, to the effect that we have one form of foul brood and the Europeans another, is nonsense.

GOOD-BY!

Before closing, there are many more things I should like to say about Mr. Cowan and his visit. I will say this much, however: For one possessed of so many attainments, he is exceedingly modest. I don't recollect that he referred to himself or to his accomplishments, except in answer to direct questions; and even then he said as little as Yankee inquisitiveness would permit.

Just as he was stepping aboard the train,

after having spent two days with us, I said to him, "I presume you would have no objection to my writing this visit up for the columns of GLEANINGS."

He hesitated somewhat, and finally said, with a pleasant smile on his face, "No, if you don't indulge in American taffy."

"All right," said I, and the train pulled out as I bade him good-by. If, indeed, I have indulged in that truly American article, I sincerely crave his pardon; but I have stated only what I think all our subscribers ought to know.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, SEPT. 15, 1887.

Forgetting those things which are behind, and reaching forth unto those things which are before, I press toward the mark for the prize of the high calling of God in Christ Jesus.—PHILIPPIANS 3: 13, 14.

CITY COUNCILS VS. BEES.

A CORRESPONDENT sends us the following:

Our city council has ordered our bees removed out of the corporation by Oct. 30. What would you do about it? J. H. TATMAN, Connersville, Ind., Sept. 3, 1887.

Friend T., you can probably do nothing by yourself; but if you look on p. 578 of our last issue you will notice what the Bee-Keepers' Union succeeded in doing under similar circumstances at Ft. Wayne, Ind. I would advise you to write to Mr. Newman, the manager, for further instructions.

PRACTICAL FLORICULTURE; PETER HENDERSON'S NEW REVISION OF THE ABOVE BOOK.

It has been quite a treat for me to go through the above book, comparing the revised edition with the old one. The author has carefully gone over every line and every sentence; and not only has considerable new matter been added, but every change that recent developments have required has been carefully made. Sometimes a single word is inserted, sometimes a single word is changed, and, again, a whole sentence or paragraph. Some chapters that were in the back part of the book, which always seemed to me should have been in the fore part, are put where they ought to be. It is a great deal of work to do this, as any one who has tried it can testify. The price is still \$1.50, postpaid, as heretofore. We can mail it on application.

SENDING GOODS WITHOUT CASH, TO ENTIRE STRANGERS.

I SUPPOSE that most of the friends, of course, are aware that no sound business man is in the habit of doing any thing of the kind; but what I wish to consider now is, that there seems to be quite a large class of individuals who order goods without saying a word about their standing or responsibility, or even telling who they are, or giving any sort of ref-

erence. Of course, all we can do is to send them an estimate with a printed slip, saying we must have either cash or reference, etc. Now, a good many people write back that they have as good a right to say they don't know us as we have to say we don't know them. And at first thought, many, especially those young in business, might say there is justice in saying they have just as good a right to ask for goods in advance as we have to ask for cash in advance. To all such we beg to suggest that business men keep records that inform them at a glance who owns property, and who is entitled to credit, and who is not. These records tell, furthermore, what a man's habits are, therefore any one can ascertain at any bank whether it is safe to send money to A. I. Root or not, and the same with other business institutions. But the reverse of this is not true. Those who seek credit without reference or explanation, as a rule are not quoted anywhere, and we have no means of ascertaining what their habits may be, or whether they own sufficient property to be responsible for their contracts and agreements. Do you not see the difference?

SPECIAL NOTICES.

CALIFORNIA SAGE HONEY.

ALTHOUGH we are still out of clover and basswood extracted honey, we have about 10,000 pounds of California sage honey, in 60-pound cans, two cans in a case. If this continues to go off as rapidly as it has done the past few weeks, we shall soon be out of this also. Our present price of this is 8 cents per pound in original cases; single-can lot, 8½ cents per pound. In packages smaller than 60-pound can, 10 cents per pound, can included. These quotations take the place of all others previously made. Samples of this honey free on application.

WANTED—BASSWOOD AND CLOVER HONEY.

OUR offer in our last issue, of 7 cts. for basswood and 8 cts. for clover, has not yet brought us any honey, therefore we now offer one cent more. In other words, we will pay 8 cts. for a good article of basswood honey, and 9 for clover honey, delivered here. I am not sure, however, that we shall get any at this price; in fact, I rather hope we shall not, for I am pleased to see the price going up to a paying figure for our bee-friends. We propose, nevertheless, increasing our offer one cent at a time in each issue, until we get some. In this way we shall ascertain just what extracted honey is now worth, letting demand and supply fix the price.

I WILL give about three hundred dollars' worth of bees and bee-fixtures for a No. one buggy-horse. Address for particulars,

S. C. KIRKPATRICK, Hodgenville, Ky.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
See advertisement in another column. 3tfd

FOR SALE OR TRADE.

Ten full colonies of hybrid bees on 8 Simplicity metal-cornered reversible frames. Shipping-cases will answer for temporary hives. Bees are in fine condition. Five dollars a colony on board cars. Will exchange for a Barnes foot-power saw with attachments.

17-18d

J. P. McELRATH,
Asbury, Warren Co., N. J.

LOOK HERE!

A complete hive for comb honey, for only \$1.50. Planer-sawed, V-groove sections a specialty. Price list free.

17tfd

J. M. KINZIE & CO.,
Rochester, Oakland Co., Mich.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; C. H. Green, Waukesha, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas; W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies; accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,

3btfid **Hamilton, Hancock Co., Illinois.**

TODD'S HONEY-CANDIES sell well at Fairs — average wholesale price, 16c @ lb.; retail, 30 cts. Mail samples, 25 cts. **HONEY AND BEESWAX** wanted on Commission, by **ARTHUR TODD**, 2122 N. Front St., Philadelphia, Pa. 15-18db

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.

—SEND FOR MY NEW PRICE LIST.—

E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y. 4tfdb

200 PEKIN DUCKS.

\$2.00 A PAIR, OR ANY NUMBER AT \$1.00 EACH, BY EXPRESS.

Pay better than raising chickens; no creek necessary. Extra large; two-thirds grown; very hardy; no trouble to raise. Satisfaction guaranteed.

16-18db **D. G. WEBSTER, BLAINE, BOONE CO., ILL.**

For Sale!

16 H. P. UPRIGHT TUBULAR BOILER.

Complete, with heater, injector, steam and water gauges, etc. Price on board cars, \$250.00. 12tfdb
WATTS BROS., Murray, Clearfield Co., Pa.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

Has published a neat little book of 45 pages, entitled "The Production of Comb Honey." Its distinctive feature is the thorough manner in which it treats of the use and non-use of foundation. Many other points are, however, touched upon. For instance, it tells how to make the most out of unfinished sections, and how to winter bees with the least expense, and bring them through to the honey harvest in the best possible shape.

Price of book, 25 cents. Stamps taken, either U. S. or Canadian.

Fine Italian Queens, reared from best selected, tested, imported mother, 75 cts. each, by return mail. 10tfdb

TESTED ITALIAN QUEENS

AT \$1.00 EACH,

Until my surplus stock is exhausted.

CHAS. D. DUVALL, Spencerville, Mont. Co., Md. 18-19d

YES, OCTOBER!

Warranted American-Albino-Italian queens, \$1.05 each; 6 for \$6.00, selected. September prices, \$1.00 each; 6 for \$5.00. *Order early. No bee-disease here.*
TAR-HEEL APIARIES,
18d **Goldsboro, N. C.**

CHROMO CARDS * ITALIAN QUEENS. ITALIAN QUEENS * CHROMO CARDS.

Hurrah for the Fair! Did you see our ad. last issue? Keep your eye peeled. Don't be a bat. Get out of your old-fogy rut. We have a brilliant circular. If you wish to be convinced, cast your line this way.
J. H. MARTIN,
16tfid **Hartford, Wash. Co., N. Y.**

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

Nice Sections and Foundation, Specialties. A full line of Supplies always on hand. Write for our new Price List. Cash paid for Beeswax. 16tfid

A. F. Stauffer, Sterling, Ill.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 11tfdb

FOR SALE CHEAP.

Root's 10-inch foundation mill, nearly new, \$12.50. Barnes combined sawing-machine, as good as new, \$25.00. Cost \$40.00. **THOS. BALCOMB,**
18d **Trenton, Clinton Co., Ill.**

HOW TO RAISE COMB HONEY.

PRICE 5 cents. You need this pamphlet, and my free Bee and Supply Circular. **Root's Fdn. Mill**, 10-inch, good as new, \$18.00. 18tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

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CONVENTION NOTICES.

The Darke Co. Union Bee-Keepers' Society will hold its next meeting at Arcanum, O., on Friday, Oct. 28, 1887. J. A. ROE.

The presence of all interested is earnestly requested at a meeting of the Northern Ohio Bee-Keepers' Association, in the Town Hall, Wellington, on Saturday, Oct. 8, 1887.

H. W. MINNS, Sec.

The Pan-Handle Bee-Keepers' Association will hold its next meeting Oct. 26 and 27, 1887, in the K. of P. Hall, No. 1138 Main St., Wheeling, W. Va. All bee-keepers are invited.

W. L. KINSEY, Sec.

The North-American Bee-Keepers' Society and the Northwestern Bee-Keepers' Society will meet in joint convention at the Commercial Hotel, corner of Lake and Dearborn Streets, Chicago, on Wednesday, Thursday, and Friday, Nov. 16, 17, and 18, 1887. Arrangements have been made with the hotel, for back room, one bed, two persons, \$1.75 per day, each; for room, \$2.00 per day, each person. This date occurs during the second week of the Fat-Stock Show, when excursion rates will be very low.

W. Z. HUTCHINSON.

KIND WORDS FROM OUR CUSTOMERS.

The wheelbarrow is a dandy, and has saved Us & Co. many a backache, and will have paid for itself by the time snow flies next winter. P. SUTTON.
Exeter, Pa., Aug. 29, 1887.

Inclosed find postoffice order for three dollars, for which please send us one crate of Clark smokers. They are the best that have ever come to this country.

JOHN PYPER.

Nephi, Utah, July 18, 1887.

Inclosed find \$1.00, due for GLEANINGS, the best bee-journal published. Yes, I must have it. I can't well get along without it.

J. J. DARDEN.

Giddings, Texas, Sept. 15, 1887.

THAT LITTLE AD.

Friend Root:—I will send you pay for my advertisement that was inserted in GLEANINGS, Aug. 15, in Exchange Column. It has given me more correspondence than I can answer. Letters poured in from Florida, all the way to Wisconsin, except from Kentucky.

L. C. CALVERT.

Poplar Flat, Ky.

I will write you a few lines to say that I have found GLEANINGS a blessing to me, especially the parts headed *Myself and My Neighbors*, and *Our Homes*, and many other good bits of reading that I have been pleased more than a dollar's worth with, and would not like to be without it.

Burnt Mills, Md., June 14, 1887. J. HAMILTON.

THAT IMPORTED QUEEN.

The imported queen you sent is a "daisy," and is doing her work with the best of them. I had no trouble with her. She was laying in three days after I put her in the hive. Well, *friend Root*, you can imagine how proud I am of her, and I shall do my best to winter her and all the rest of them.

DR. L. L. LOOMIS.

Pemberville, Wood Co., O., Sept. 23, 1887.

THE CLARK SMOKER AND SAWDUST FUEL.

The Clark smoker works admirably with the shavings-like sawdust we get in making the white-poplar sections.

DR. G. L. TINKER.

New Philadelphia, O., June 21, 1887.

I have been sending you little orders ever since 1882. The goods have reached us always by the time the invoice did, and often before. Your goods have always been as good or better than you represented them, for which I thank you very much.

JOHN J. MATTHEWS.

Antimony City, Sevier Co., Ark.

The bees arrived Tuesday evening. I put them in with a weak swarm of black bees. They have passed one day of business in their new home, and seem to be all right. This has been my first effort in this line. If all goes right I shall be glad. I am a novice in bee culture, and this is my second season. I read the A B C, and feel stronger and more confidence in myself.

S. HOPKINS.

W. Walworth, N. Y., Sept. 6, 1887.

THE A B C BOOK NICER THAN EXPECTED.

(SEE P. 684.)

Your beautiful A B C book received. I asked for a paper-covered one, and you sent a cloth-bound one. Surely you speak the truth when you say you strive to give a little more than is expected of you; for even I, a beggar, got more. I should be ashamed to think I asked for the book as I did, if I didn't tell myself that, out of the very first profit I received from those bees, that book shall be paid for. I didn't expect it was half as large or half as nice or half as beautiful, any way, and I am very much obliged for it until you are better paid. If good wishes from a great many friends would only do it, I think you might visit your apiary to-morrow morning and find all trace of foul brood had left it for ever; but trouble will come, and usually for some good, but it is hard to believe it so.

MRS. C. PENNINGTON.

Cottage Grove, Minn., Aug. 22, 1887.

PLEASED: OUR MODE OF PACKING.

You will pardon my freedom when I assure you that your kind, pleasant, and instructive Home talks have made us all quite well acquainted with you. Will you kindly permit me to thank you for the beautiful bees and the careful manner of putting them up? also for the large handsome queen, whose agreeable acquaintance we made to day? Bees went to carrying pollen within 90 minutes after being released, and are so courteous, gentle, and, apparently appreciative of our attentions that I—well, I trust you will not think me idolatrous if I confess to having fallen in love with them. I fear we shall never be able to cancel all obligations, but hope to deserve your confidence *always*.

MISS DODY E. BEAUCHAMP.

Orange, Tex., Aug. 21, 1887.

Mr. Root:—Dody forgot, I presume, to tell you that the bees went from the express office, 8 miles on horseback, and the rest of the distance, 17 miles, on a small sail-boat, against a stiff breeze and heavy sea, and still seemed as if able to continue the voyage to Central America, if so required. Tennie, too, says thank you. If the bees die, it will be from overnursing.

W. A. J. BEAUCHAMP.

Orange, Tex., Aug. 21, 1887.

THE WINTER CARE OF HORSES AND CATTLE.

THE MOST HUMANE AND PROFITABLE TREATMENT.

By T. B. TERRY.

Although the book is mainly in regard to the winter care of horses and cattle, it touches on almost every thing connected with successful farming—shelter, comfort, feeding, exercise, kindness, different sorts of feed, with a full treatise on the most economical way of saving manure. A full description of Terry's model barn is also given.

Price 40 cts.; by mail, 43 cts.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—Honey.—Fair demand; retail buyers think price too high, and buy small. Our market has been brought into notice so of late by our high quotations, we thought best to write you and explain our position. With the short crop, we saw no reason why we could not sell to the jobbing trade at 20c, and to retail trade at 22c, and have sold nothing of fancy quality less than 20c this season. We have received a good many letters from all parts of the country, saying if we could get the prices we quoted, the writers would send us their honey; but we have written them that it was not advisable for us to have any more just now, as, if we should have it all come here, we should have to sell at 15c. Our advice to all is, not to hurry your honey to market. There can be none made until next season, and it will be all wanted at good prices before then.

Our neighbors are offering good one-pound sections at 18c, and it may be that it will be lower, so our quotations should be 18c@20c for 1-lb. sections; 17c@18 for 2-lbs. Extracted, 7c@9c.

BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

Sept. 21.

CINCINNATI.—Honey.—The demand is very good for extracted honey from manufacturers, who buy Southern honey principally. Only a few of our customers buy clover or other varieties, to suit their own flavor, for manufacturing purposes. There is also a very good demand for clover honey, in square glass jars, from the jobbing trade. Extracted honey brings 3½c@7c per lb. on arrival, according to quality. There is no new comb honey in our city, consequently we can't sell any, and it seems to be folly to make quotations. But we believe that a choice article of comb honey would bring 18c@20c per lb. in a jobbing way at present. This is more than it will bring about Christmas, if our experience of former years is a criterion to go by. You editors are wrong to advise our friends to hold on for higher prices. If we are wrong, let us know, please, in due time, and we shall acknowledge our error.

Beeswax is in good demand, and brings 20c@22c per lb. on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
Cincinnati, O.

Sept. 20.

ST. LOUIS.—Honey.—We quote choice comb 13c@14c; latter is for choice white clover in good condition. Strained, in bbls., 4c@4½ cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted, in bbls., 4½c@5½ cts.; in cans, 6½c@7 cts.

Beeswax, 20½ cts. for prime.

Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

D. G. TUTT & CO.,
206 N. Commercial St., St. Louis, Mo.

Sept. 22.

CLEVELAND.—Honey.—The market was never in a better state than at present; every lot is taken up promptly on arrival, at 18c for best white 1-lb. un-glassed sections; 14c@16 for 1½ and 2 lbs. Second grade and dark is not so active at 8c@12c. Extracted white clover, 8c. Basswood, 6c@7. Beeswax, 25c.

A. C. KENDEL,
115 Ontario St., Cleveland, O.

Sept. 20.

ALBANY.—Honey.—Market firm; think partly because of the reported short crop, causing a holding back, which makes receipts light. So far, we caution against holding too much. We quote white, 15c@20c; mixed, 12c@13; buckwheat, 11c@13. Extracted, white, 8c@10; buckwheat, 6c@7c.

H. R. WRIGHT,
328 Broadway, Albany, N. Y.

Sept. 22.

CHICAGO.—Honey.—The market has assumed a steady tone, and white comb in one-pound sections brings 18 cts. Something fancy, 20c, but there does not seem to be much of this grade. Two-pound sections, 16c. Extracted at 6c@8c. Beeswax, 22c@25c.

R. A. BURNETT,
161 So. Water St., Chicago, Ill.

Sept. 20.

COLUMBUS.—Honey.—The honey market is very firm, and none, scarcely, coming in. Parties from whom we hear, all speak of the great falling-off in yield, and all are either asking a high figure or unwilling to name a price. Others from whom we have heard throughout N. Y. State, will not fix a price until after their association meetings. We hope to be able ere long to name a figure for honey, and also a selling price. We are wholly unable to fill orders sent in, and must decline giving prices for awhile.

E. CLICKENGER & CO.,
Columbus, O.

Sept. 21.

KANSAS CITY.—Honey.—Our market is bare of comb honey, and the demand is good. We look for no lower prices, and they may advance two cents at any time. Choice white 2-lb. sections, 16c@17c; dark, 12c@14; choice white 1-lb. sections, 18c@20c; dark, 14c@16; California white 2-lb. sections, 16c@17c; 2-lbs., extra Cal., 13c@15; 2-lbs., Cal., 12c@13c. Extracted, choice white, 8c@10c; dark, 5c@7; California white, 8c@9; amber, 7c. Beeswax, 21c@22c.

HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

Sept. 21.

NEW YORK.—Honey.—The honey market seems unsettled, as it is impossible to approximate the quantity now held in the country. At present we quote: Fancy white 1-lb. sections, 17c@19c; 2 lbs., 15c@16; fancy buckwheat 1-lb. sections, 12c@14; 2 lbs., 10c@12. Off grades, 1 and 2c per lb. less. White extracted, 8c@9c; buckwheat, 5½c@6; Southern, per gallon, 60c@70c. Beeswax, 22c@23c.

MC CAUL & HILDRETH BROS.,
28 & 30 W. Broadway, N. Y.

Sept. 20.

PHILADELPHIA.—Honey.—Fancy new white honey is in very limited supply, and far advanced. Inquiry is only for 1-lb. sections of white. Larger sections and dark goods are nominal as yet. We quote: New white clover, 18c@20c; buckwheat, 14c@16. Beeswax is in fair demand; prime yellow, 23c@25c; medium and dark, 18c@20; white (none offered) higher.

PANCOAST & GRIFFITHS,
122 Dock St., Philadelphia, Pa.

Sept. 21.

ST. LOUIS.—Honey.—Honey is scarce in our city—very little coming in, and stock so far is poor. Comb, choice, white clover, 1-lb. sections, 14c@15c; fair stock, 10c@12; low grade, 8c@9. Extracted, white clover, cans, 7c@8; fair, 6c@6½; Southern, bbls., 4c@5c. Beeswax, 20c@21c.

W. B. WESTCOTT & CO.,
108 & 110 Market St., St. Louis, Mo.

Sept. 23.

NEW YORK.—Honey.—Our market for honey is unchanged, with a good demand.

F. G. STROHMEYER & CO.,
122 Water St., New York.

Sept. 21.

DETROIT.—Honey.—Best white comb, in 1-lb. sections, 16c@18c. Beeswax, 23c.

M. H. HUNT,
Bell Branch, Mich.

Sept. 21.

FOR SALE.—Extracted white-clover honey in 120-lb. kegs, net, 10c. M. ISBELL, Norwich, N. Y.

FOR SALE.—700 lbs. extracted basswood honey, for \$75.00 in 100-lb. cans. Also 600 lbs. of box honey at 18c per lb. (100 lbs. of it in 1-lb. boxes); or the lot for \$180.00, crated and delivered on cars here free. The above lot is No. 1 honey, and well ripened.

F. M. WRIGHT, Enosburg, Franklin Co., Vt.

FOR SALE.—200 lbs. buckwheat and fall honey, in 1-pound boxes. If there are any who want this class of honey, will they please write me what it is worth to them?

WM. VANAUKEN,
Woodville, Jefferson Co., N. Y.

WANTED.—To purchase from one to five thousand pounds choice white-clover honey in one-pound sections. Crates to average about 25 lbs. each.

I. T. CARSON & CO.,
325 West Main St., Louisville, Ky.

15-20d

FOR SALE. Rubber-stamp apparatus cheap; size 4x6. Send for description and price to FOSTORIA RUBBER-STAMP CO., 19d FOSTORIA, OHIO.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.



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No. 19.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.50; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 30 cts. each, sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

A VIEW OF THE OFFICE AT THE HOME OF THE HONEY-BEES.

SOMETHING IN REGARD TO THE BRAIN-WORK OF THE ESTABLISHMENT.

WE take great pleasure in giving you a view, a little further along, of our office as it appears almost every day. I have before given you sketches and incidents connected with the office work, so you already know something about it; and many of our friends not only feel familiar with our clerks by their signatures, but I presume they know most of them by their handwriting. Sometimes when visitors call they ask questions like this: "Will you tell me which one is 'Lu,' and where she works?" or "Is this Addie?" or "Bessie?" or expressions of a similar nature. Well, I am going to try to-day to introduce you, as well as I can on paper, to the workers in this department. There are in the room, I believe, twelve women and three men. Visitors often ask the question, why it is that our office should be so largely of the gentler sex. The answer I usually give is, that it is a great deal according to the law of the survival of the fittest. To be correct, however, I think I shall have to acknowledge that another item has something to do with it. During all my life, or, at least, of late years, I have tried to give work to those who seemed to need it most; and I believe it is true that it is much more difficult for a woman out of employment to find a place than it is for a man. A man can go and hunt work where a woman can not, or, at least, can not very well; so this has

something to do in regard to who shall have a place in our establishment, when there are so many constantly applying for places. But after all, it is those who are *faithful* that hold the places permanently. The Bible tells us, you know, that he that is *faithful* in little things shall eventually be intrusted with more important responsibilities; and this has been the case with us.

Perhaps the most important post in the whole office is that behind the wire railing, where you see four women at work at the ledgers, keeping accounts straight, and collecting. This is, perhaps, the real foundation of any business. If things are loose, and not attended to in the book-keeping department, the business will go down, no matter how well other departments may be managed. Miss Mason, who usually signs her name "M." in her correspondence, has the principal charge of the books. Three and sometimes four assist her in this work during the busy season. Right close by this desk with the wire railing around it, you will notice the door of the large safe, or vault. The books are all put in here over night, and taken out in the morning by the janitor. In fact, our ledgers are so heavy (including the \$75.00 index-book I have before told you about) that it would be quite a task for any woman to handle them all. This vault mentioned is one of a series of vaults in each of the three floors. They are built of such solid masonry that we expect them and their contents to remain uninjured, even should our whole establishment be destroyed by fire. All sorts of goods where there is much value in a small compass are stored in these vaults. The one that con-

tains the ledgers and other valuable papers contains pretty much all of the books we sell; for a good deal of money can be put in small compass where it is invested in books. Our book-trade is one large item of our business. In order to ship books promptly and rapidly, they are all wrapped up before being put away in the safe. Where the book is heavy, the corners are protected; and to avoid any danger of getting hold of the wrong book, the name and price of each book is printed on each outside wrapper. You may ask why we do them up until they are ready to send off. There are several reasons why. It keeps them clean, and free from dust. It is a saving of time; for the cost is comparatively nothing, where a clerk ties up books, having suitable paper, twine, and every thing in readiness, compared with wrapping them up one at a time. The lady standing up by the window, near the vault-door, is the one who has charge of the contents of the vault, mailing books, and, in fact, mailing almost every thing else. She is very careful and trustworthy in tying up goods securely and safely; and when complaints come in that somebody got the wrong book, or something was not tied up as it ought to have been, she has to take at least a part of the responsibility of making the wrong right. Her table is just back of where she is standing. In fact, I believe the photographer asked her to stand up and look this way when he took the picture. On her table will be found the very best kind of wrapping-paper, suitable twine, clasp-envelopes, strips of wood to put on articles that might be injured were they not strengthened, and all the paraphernalia needed to send almost any thing from the counter store below, over the mountains to California, or anywhere else where the U. S. mails reach.

Just in front of Mrs. Whitney is the desk where the clerk sits who opens the mails. Her sole business is to open each letter carefully, and note on one corner exactly what it contained; and if the contents are not exactly in accordance with what the writer claims to have sent, a printed postal is addressed him before the letter leaves her hand. If a man says he incloses a dollar, and she says that, when the letter reached her hand, it contained no dollar at all, there is a chance for quite a quarrel; so you see it is of the utmost importance that she mind her p's and q's; and if you were to go into this office you would find this clerk seldom speaks or seldom looks up at anybody or at any thing; and it is also her duty to place each letter, as it leaves her hands, under paper-weights (ready for my inspection) that indicate what department they are intended for. This latter clerk has also turned around in her chair, in obedience to the photographer's command. You see, he is "boss" for the time being.

Now, the desk right in front of this latter clerk, as she faces this way, the one covered with all sorts of traps scattered about promiscuously, belongs to A. I. Root. His chair is vacant, as you will notice; in fact, he never sits in it very long at a time, nor in any other chair, for that matter, unless it be where he is sitting at this moment, dic-

tating these lines to you. One reason why his table is in such disorder, compared with the rest, is, that so many matters are under consideration or awaiting the result of something else. Besides, a good many things are dropped on his table for inspection when he comes around. Last, and worst of all, there seems to be always a lot of things that he ought to attend to when he has a little surplus time or energy. On each side of his chair are rows of drawers. These drawers contain letters for the different departments of GLEANINGS. That is where Ernest goes when copy is wanted.

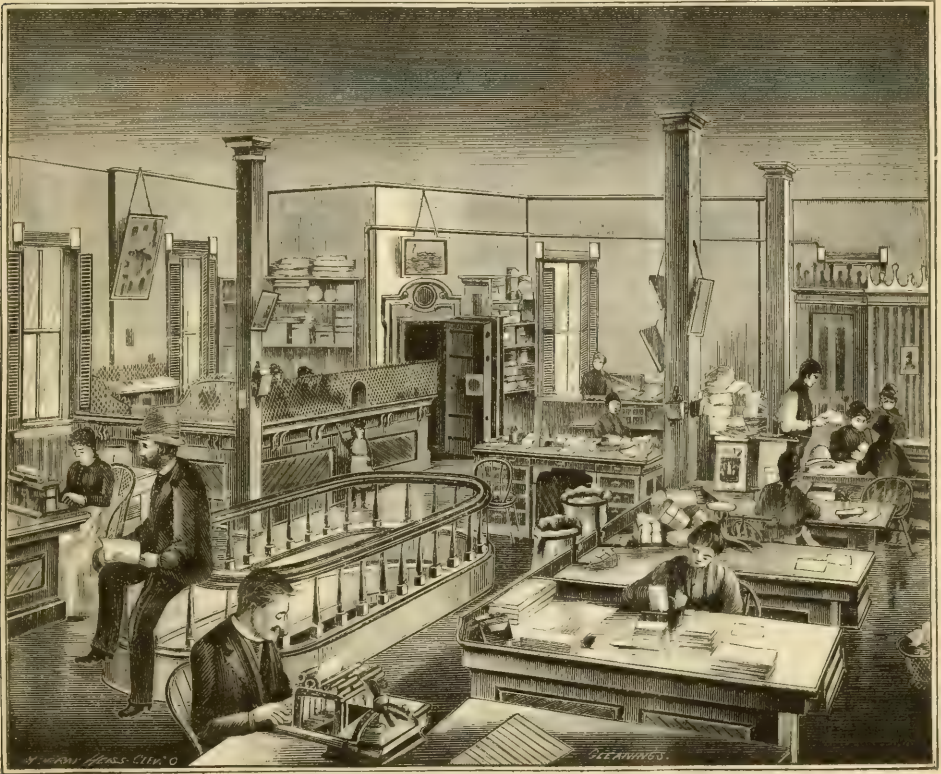
In the further corner of the room, opposite to the one occupied by the vault, is what we call the cloak-room. This is where the women-folks hang up their things, and where they go for a little seclusion any time they wish it. It contains a lounge, to be used in cases of indisposition. There is also a cupboard for rubbers. Mrs. W., however, whose work-table is right at the door of this room, complains that even among the women-folks the rule, "A place for every thing, and every thing in its place," is not always observed. This room also contains a wash-bowl and pitcher, and we are talking about having a marble-topped wash-stand, but we have not quite got around to it yet.

The clerk next to the cloak-room, facing this way, is the subscription clerk. She signs herself "Lizzie," and she has charge of every thing pertaining to subscriptions and advertisements. If in your order you say, among other things, "Send me GLEANINGS," the letter goes to her first; hence you see it is quite important that she should finish the letter quickly and pass it on to the express clerk or to the freight clerk.

The next one, right in front of her, takes all the letters ordering goods by freight. On a suitably printed blank sheet she copies off all the writer orders, taking particular pains to call a thing by the name it is called by in the price list, whether our customer observes to do this or not. If he omits prices, or gives them incorrectly, she corrects them. In fact, she condenses the order on this blank order-sheet in the fewest words possible, and yet have it plain for the packers. She also, by the aid of the Postal Guide and other books, makes sure the address is plain and correct, so you notice her place is quite responsible. Now, while women can do almost any thing that men can do, where they have had equal practice and experience, there is much of their work that needs a man's assistance and advice. Accordingly, a great part of the time you will see our friend John Calvert standing at her desk, with his hands full of letters. A great many times important questions in regard to machinery, the amount of power needed to drive it, the size of engine to be used, etc., are received. Questions of this nature make it necessary for us to hold a little council, as doctors do. In such cases, Mr. Warner, the foreman of the saw-room, myself, and Ernest also, advise in regard to the matter. The result of our decision is either verbally given to the freight clerk or dictated to one of the shorthand writers. The clerk at this desk of which we have been

speaking signs herself "C. K." During the busy season she has sometimes two assistants, and almost always at least one assistant. This assistant is seen with her back toward us. Either the photographer didn't call her, or else she didn't see fit to look around. She signs herself "Mattie;" and although she is younger than most of the others in the office, she has distinguished herself for remarkable accuracy and faithful attendance to her work. Whenever I hear too much fun going on in the office, consistent with the safety of our business, I never feel afraid that Mattie has any voice in it—that is, during working hours, and I believe this has much to do with the accuracy of her work.

them up. If they go to the wrong postoffice, or if she makes any sort of mistake in town, county, or State, she bears the responsibility. Goods that are needed almost every day are piled up on desks at her side, or before her. For instance, the A B C book, Terry's potato-book, smokers, and other things that are called for almost constantly, are already tied up, so she has nothing to do but to write the applicant's name and address on the package. Between these two last clerks, on one side, you will notice a couple of mail-bags. These are suspended by a sort of heavy iron bag-holder, and these bag-holders can be raised or lowered by means of a set-screw. After the mail packages are addressed, the proper amount of postage is put



OUR OFFICE: A GLIMPSE OF SOME OF THE BRAIN-WORKERS AT THE HOME OF THE HONEY-BEES.

Right back of Mattie sits another clerk also, with her back toward us. This is no other than our friend "Lu," who has been with us so many years that you almost all, doubtless, feel more or less acquainted with her. I presume the reason why she didn't turn around was because she is quite deaf; and if the photographer tried to make her hear he probably did not succeed. She has for years had charge of all our letters containing orders for goods by mail. She looks them over carefully, decides what to send and how to send it, and then the letter is given to Mrs. W., before mentioned.

The remaining clerk nearest us, with her face this way, is Addie. It is her business to address packages after Mrs. W. has tied

on by affixing stamps of different denominations from the stamp-drawer right at hand. When they commence filling the bags, the bag-holder is raised away up so the bottom is clear from the floor. When partly full, the holder is slipped down; and when the mail-boy comes for them at half-past three, the bag-holders are simply dropped down out of the way, and he comes down stairs pulling a bag after him with either hand. He has a wheelbarrow of his own, standing right by the outside door, unless somebody has borrowed it, and we have had some jangles and some loud scolding because, in spite of printed notices on the front board of said barrow, somebody persists in borrowing it, and then forgets to bring it back. If you

want to see how well I can scold, just take that nice light wheelbarrow, belonging to the mail-boy. When the mails are very heavy, he takes a horse and wagon.

And now we come to one of the shorthand writers. He is a brother of the proof-reader, whom I have several times mentioned, and, like this brother, picked up shorthand of his own accord, and became quite expert before hardly anybody knew it. He has not been long enough in the office to get as much acquainted with the office ways as the girls have; and there has already been some discussion as to whether any man would ever be able to manage our office business with as much care and neatness as the women-folks. I believe these discussions have, however, always been of a friendly nature; for although our women-folks belong to various churches, and have various opinions of their own, I don't believe we ever had one real live woman's-rights woman in our establishment.

The man sitting on the railing surrounding the opening that communicates with the counter store below, is Ernest. He is dictating to the shorthand writer who signs herself "N. J." She has for a great while written the greater part of our correspondence by means of the caligraph. She has been a great many years in our employ, and is perfectly familiar with almost every department of the business. She is remarkably quick and accurate; but she is not physically able to endure as much fatiguing brain-work as a good strong man. In these friendly discussions in regard to the ability of the two sexes, this question has also been discussed: "Has a woman the endurance that a man has for hard labor with mind or muscle?" Well, even if she has not, I have sometimes thought that a woman's quickness and intuition more than make up for her lack in strength; and even if such is not the case, I feel strongly inclined to give them the preference, other things being equal. I like to see our business prosper, and prove a success financially; but a hundred times more do I wish it may succeed in being helpful to my fellow-men and fellow-women. I believe, my friends, the latter have already demonstrated that woman is fitted for many places that she has not heretofore filled; and when my work is done here, I shall be glad to have it said of me that I had helped women to earn a livelihood where they were not situated so as to be able to help themselves.

Now, this room of which I have given you a view is a much longer one than it appears in the picture. The opening, through where the counter store may be seen below, is about twice as long as it appears in the cut; and through this opening we call to the clerks below, and they call to us above. As the view is given from the northeast end of this room, the east end is not seen at all; but for all that, a very important part of our business is located in this east end. It is the files of all our correspondence, that I have described before. The clerk who has charge of this department has been many years in the business, and we call her Kittie. She is expected to be able to produce any

letter that anybody ever sent us—that is, within three or four years back; for we sell our letters for paper-rags, after they are that old. Another clerk near Kittie takes charge of the express business, very much the same as "C. K." has charge of the freight department.

There is just one other individual I have passed by, and that is the little chap right under the opening, under the wire railing around the ledgers, and this is our four-year-old Huber. I presume he is asking the ladies if any of them can tell where his pa is; and I presume he is smilingly answered, as many another has been, over and over again, to the effect that the whereabouts of your humble servant is one of the problems "hard to find out." Sometimes they tell visitors, "If you look all over the grounds, and don't find him, you might go through all the different buildings; but as he is continually on the move, the chances are you will tire yourself out, and not get a glimpse of him, even then."

BEE-KEEPING IN CONNECTION WITH OTHER PURSUITS.

C. C. MILLER CONSIDERS AND SUGGESTS IN REGARD TO THE MATTER.

SHOULD bee-keeping be made an exclusive business, or should it be pursued in conjunction with some other business? This question can be best answered after considering some of the pursuits that may be combined with bee-keeping. I am competent to speak of only a few; and if it seems really desirable that there shall be a combination, perhaps others may be called out. Perhaps I may arouse Bro. G. M. Doolittle, by saying that I think he has made one of the worst combinations possible in combining bee-keeping with small-fruit raising. I think there is a somewhat general impression that bee-keeping and raising small fruits go nicely together. There is this much to say in favor of it—that the man with the right taste for bee-keeping is apt to have the right taste for a fruit-raiser; and if successful at either he would be successful at the other if he should turn his attention to it. But a business to be combined with bee-keeping should be one that would require the attention of the bee-keeper mainly at a time when his bees require no care. So far as my experience goes, the small-fruit business requires the closest attention at the very time the bees demand it. As soon as spring has fairly opened, there is work to be done at the bees, and so there is at strawberries, raspberries, etc. As the season advances, the bees become more imperative in their demands, and so do the berries. In the height of the picking season, when the eyes of the fruit-raiser must be everywhere to see that pickers are making good work, to settle disputes, to make sure that berries are promptly sent to their proper destination, and not allowed to lie over and spoil—at this time, when the fruit-raiser, unless possessed of a very cool head, is about half crazy, the bees alone are enough to make him go distracted when a dozen swarms may come out at a time. In a word, the busy time for each comes at the same time, and what is wanted is something to occupy the leisure time of the bee-keeper. Teaching school, I think,

comes nearer to it; for the busy time with bees comes in the summer vacation; and one with sufficient strength and the right taste might take care of quite a number of colonies without interfering with school duties. I think, however, he would in time decide as I did, to give up one or the other. A notable exception, however, is in the case of Mr. E. A. Gastman, of Decatur, Ill., who has been for many years superintendent of schools, if I am not mistaken, and at the same time a bee-keeper. Mr. Gastman, however, is a man of magnificent physique—by the way, it just occurs to me that he is very much the build of G. M. Doolittle—and looks as if he might easily do the work of two ordinary men.

Of course, there may be many special departments in which different individuals may have developed special taste and ability, where a somewhat successful combination might be made. For instance, the teacher of the old-fashioned singing-school (now unfortunately out of vogue) could take care of bees without interfering with his "schools," held only on the long evenings.

But what we are after is something that may be done by almost any one with the requisite qualifications to be a good bee-keeper. I think I have heard poultry-keeping spoken of in connection with bee-keeping. That, again, comes too much like berry-raising. When work begins to press with the bees, old Biddy will be wanting to sit, and perhaps two or three hens will be sitting on one nest, persistently changing from where you want them, till you feel like shutting your teeth together hard, and saying, "What does make you act so, when I haven't time to fuss with you? I should just like to wring your necks for you." Yet after all this is said, there remains the fact that, in at least two instances, periodicals have been published having for their specialties bee-keeping and poultry-raising. Why this, unless the two pursuits were supposed to have some special adaptation to each other? To tell the truth, if a young man to-day were to write me, "I have at least ordinary ability as a bee-keeper, and have decided I must have some other pursuit to connect with bee-keeping, what shall it be?" with my present knowledge I should reply, "Keep poultry." But I wouldn't have any hens sitting in swarming time, nor, indeed, with flocks of little chicks wandering about, trying to lose themselves in the wet grass. I have studied some little about it, and taken some observations; and I think the whole business of poultry-raising might be done almost entirely when bees require little attention.

Mind you, I don't say it is best to combine at all; but if combining is done, the merits of poultry-keeping deserve consideration. Others, perhaps, will favor us with their combinations.

Marengo, Ill.

C. C. MILLER.

Friend M., I have thought of this subject a good deal, and especially this matter of giving up every thing else and depending solely upon bees. If one has decided to do this, he should be very slow in making the change; and I would advise having capital enough in the bank, or somewhere else readily available, to take them through one or two seasons with little or no honey. Perhaps few know how many have got into trouble by depending on bees alone during the season that is just past. And there is another point: A young person with not

very much experience in bees or poultry either, would be pretty sure to neglect one or the other. Dividing the interest, with many people, seems to unfit them for what they might do well if their whole energies were given to it. Fruit-raising, or gardening and poultry-keeping, come in nicely, because one can be at home in the pursuit of all these industries. If the bee-keeper is employed by somebody else his time is not his own, and either the bees or his employer is apt to suffer. On the whole, I think it well for a bee-keeper to have a small piece of land, say five or ten acres; then let him manage his crops, or whatever else he does, so that it shall not absolutely demand his attention at the same time the bees do.

WHAT HAS THE HARVEST BEEN?

PROF. COOK GIVES US HIS REPORT OF THE SEASON JUST PAST.

WE have just put up our bees for winter. While they have given us very little honey (the least we ever got in any year since 1868, when I commenced keeping bees here), still they are in grand shape for winter—strong, healthy, plenty of young bees, and more than enough honey.

It will be remembered, that our bees are Syrian with several crosses of Carniolan. I went into Syrian exclusively when Mr. Jones first introduced them. I liked them; they were prolific, good to protect their hives, good to collect honey; but they were a little too irritable. I got a Carniolan of Mr. Benton some years since, and each year since have introduced some Carniolan blood. I now have two pure Carniolan queens in the apiary. The bees in general are quite yellow, showing the prepotency of the Syrian race; but they are also quiet, and really I like them much. I believe I am on the right track—any way, I shall keep right on, constantly breeding from the best.

A nephew, who has largely cared for his father's bees, helped me the other day. "Why," said he, "I never saw such pleasant bees to handle."

"Thank Carniola for that," said I.

I worked with them all the afternoon Saturday, with no protection, no bee-tent, and yet I got hardly a sting. Of course, robbing was started; but never fear robbing with good vigorous colonies of Syrians.

PROF. COOK GIVES APIFUGE A TRIAL.

Last Thursday I wished to work with some of the colonies; and as no other aid was available, Katie was my right-hand—manly girl. The day was quite cold and windy. Mr. Cowan had left me some apifuge; so I said to Katie, "We will try it." We both rubbed it all over our hands. Katie got one sting, and I got ten. The day before, I worked about the same time and got only four stings, with no apifuge, though the day was warmer. So much for apifuge. I did not use a bee-tent at any time.

Mr. Root, I wish to tender a vote of thanks to Mr. Cowan, from American—that means Canada also—apiarists. He was very thoughtful, and spared no pains that he might aid us to the utmost. I shall never forget his visit, and shall hope that it will be soon repeated.

HONEY-DEW, AGAIN.

Mr. J. H. Wood, Hammond, Ill., sends me a vial of honey which is evidently honey-dew, or secretion from plant-lice. It is not very unpleasant to the taste, but would not do to market. I do not believe that it is wise to use such honey for winter. Mr. Wood and several others have written me, asking whether I would use such honey for winter, and so it is a matter of practical interest. I have had bees gather quite a considerable lot of honey-dew from larch, which was very pleasant to the taste, and would injure no honey-market. Such honey seems to do no harm. Two years ago I received several samples of honey-dew, which had been stored by bees in our Northern-Michigan country. This was pleasant when first taken into the mouth, but was unpleasant soon after, and left a bad taste. I said I should try this if I had it, to some extent, though, of course, its use involved risk. It was tried, and proved disastrous in every case, so far as I know.

Let me add, that such terrible droughts as we have had the past season are very favorable to plant-lice (aphidae), and bark or scale-lice (coccidae), the very insects that secrete so much honey-dew. Again, such dry seasons shut up the nectar-glands of the flowers, and so the bees are ready for any kind of nectar; hence the double danger in just such seasons as this has been, and the need of extra care on the part of the apiarist.

Agricultural College, Mich.

A. J. COOK.

Friend C., it brought pleasant remembrances to my mind when you spoke of Katie. I have tried to tell our folks at home about your two children, and I think your expression describes her in some respects. She is strong and able. If she has not the strength of a little man, she has the good sense, and I noticed she was versed on many things that even women seldom look into. I suspect the reason is, because she is so much in the company of, and so extremely well acquainted with, her papa. I was pleased, during my visit, to note that both she and Bertie were able to converse on almost every subject their papa and mamma took up. What a pleasant thing it is to feel, that in each little home circle we are all one in our interests, our tastes, our pleasures, and our tasks!—I have been fearing, during this terrible drought, that we should have more honey-dew than ever before; but in our locality we have been happily disappointed. Very little of it has made its appearance.

OUR P. BENSON LETTER.

TESTYMOANYELLS TO P. BENSON A. B. S.

I HEREWITH present to my noomerous friends & admirers the followin galaxy of testymoanyells. They air entirely unsolisseted, the spontaneous outburst, as it were, of the emoshens of the hart. Thay will be found annex & subjoined heartwo as folloughs:

I have saw l of yure hunny boxes & I esteem it a grate invenshun, I shell never agane take up swarms with brimstone to get the hunny.

Bodderidono, Jan. 4, 1887.

G. M. DOOMUCH.

In the kuntry whair I was born, of whitc I was a native befour I cum to this kuntry, I never have saw a man I thot was the equill, I may say not even the soopeyver of P. Benson, A. B. S. I never herd of sitch a man thare. I doant beleave thair is sech a man thair. I am most shoof of it. If sitch a man is thare I wood of herd of it. I doant beleive thare is sitch a man on the face of the hole urth.

C. F. MOOT.

Sinsnatty, Feb. 30, 1887.

P. Benson, A. B. S. *Dear Sir:*—Yure foundashen is a grate invenshen. It is a long step in advants. In fact it is several steps in advants. Heretof we always poot our hives on the ground or hung them up on trees. This yeer we have poot a foundashen under each hive and it wurkx to perfeckshen. When bee-keepers see the advantage of it evry hive will have a foundashen bilt under it.

Porkilton, July 4, 1887.

C. P. NIGHTDANT.

I am very glad you conseved the idea of invertin hives. It will increase the produck 6 foaled & do away with the grate skureity of hunny.

Dewoodjack, June 31, 1887.

JAMES FOOTON.

Yure plan of counteractin the brude nest and makin the bees bild thair oan combs has been tride by sum of my nabers, and is a grate sucksess. You have my unquollyfide approvevle.

Vogersville, Oct. 4, 1886.

H. Z. WUTCHINSON.

Yure idee of gittin up a fackterry whare evry-buddy ken get all the bee fixins he needs is as use-fool as it is navvie. I hev often wundered that no-buddy thot of this before, for thare hed ot to be at leest 1 sitch place & and I think jist sitch a disinterested man as yourself, friend Benson, so modest & unassoomin, yet with sitch a vast scoop of intelleck is the rite man fur it. I will git oll my hives & things frum you.

A. I. BRANCH.

Medienow, Apr. 31, 1887.

I hev long felt the need of a noospaper whitch is all bees, & I feel sure you will make the most remarkable editior of the age.

T. G. OLDMAN.

Sheecowgo, Joon 31, 1887.

Much a steamed frend, yure projeck to lurn evry buddy how to keep bees in 6 short lessons without a master fills a akin voyed. I wood like fur straight to cum and wurk under you awhile & am savin up for it now.

A. C. JOOK.

Launcesing, Feb. 31, 1887.

I hev a hole trunk fool of sitch testymoanyells whitch thair izzent room to print them. Here is the trunk.



TRUNK FOOL OF TESTYMOANYELLS.

and you ken look them over at yure convenient.

P. BENSON, A. B. Sighentist.

MR. THOMAS WILLIAM COWAN.

A FEW WORDS IN REGARD TO HIS RECENT VISIT.

IT seems to me no more than fitting that we should take a little space to speak of one of the greatest of living bee-keepers. I do not mean by this that Mr. Cowan has the largest apiary in the world, for, in fact, I do not know how many colonies of bees he does keep. Furthermore, I do not know that he has ever made any money by following the pursuit of bee culture. It sounds a little strange, does it not, friends, to speak of it in this way? Well, the fact is, friend Cowan gave me a new glimpse of life; that is, he gave me a glimpse of the life of a human being who is not working as we Americans do, too many of us, simply to pile up dollars. I presume likely he is wealthy; but he did not tell me how much he is worth, and I did not feel like asking him. In fact, since I have been thinking of it, in our country we place altogether too much stress on the amount of property a man has laid up. In my Sunday-school class of growing boys a short time ago, the subject turned on wealth; and almost all of the boys, directly or indirectly, declared that money is the main thing. In trying to give them a glimpse of something better, I asked them how much they knew of Vanderbilt. They had heard his name mentioned, but not one of them could tell me much about him. I don't think that one of them knew whether Mr. Vanderbilt was dead or alive. They only knew that he had had the credit of being worth millions. Several years ago, while away from home, a locomotive and train of cars stopped at the station where I was standing. There was something so unusual about it that I inquired of a bystander what it all meant. He said it was Vanderbilt's traveling escort. He owned the cars and he owned the locomotive. We did not get a glimpse of the millionaire, but we did see his servants and waiting-men. They were fixed up enough to satisfy us, without getting a sight of the great man himself. Perhaps you wonder if a great crowd gathered. I don't believe that half a dozen people crossed the street; and although the train was evidently intended to impress the world on whatever road it ran, it did not seem to have succeeded at all. Nobody cared particularly about Vanderbilt; and the sight of this spectacle, indicating his princely wealth, gave me but a feeling of pain. I remember a gathering at a railroad station a few years after this. The gathering was to get a glimpse of Garfield. People came for miles around, and a great crowd surrounded the end of the car where he spoke to them during the brief interval the train stopped. The people flocked to see him, and to take him by the hand, as many as could, because he had risen from obscurity—yes, from being a canal-boy, by his own efforts and industry. Garfield was never worth very much money, I believe; but he won the love and esteem and respect of almost the whole world, because his life was given for the good of the people.

Well, in that two-days' visit with brother

Cowan I did not hear any thing said about great chances of making money, nor any discussions whether this, that, or the other would *pay*. It is sometimes said, that riches tend to discourage energy and industry. It has not been so in this case. Friend Cowan must have been all his life a most energetic and determined worker. I don't know how many people he employs, but I feel sure he might employ a great many if he chose. But the work I speak of is the work of his own hand and his own brain. When I met him at the train I offered to carry a part of his luggage, and I took hold of a nice square box that I thought would be just about what I should like to carry. I very soon, however, passed it over to Ernest. Had the box been filled with iron wedges, I should not have been more astonished. Pretty soon it transpired that this was his microscope. You know, friends, I have for many years worked in metals. I know pretty nearly how many years of patient, earnest toil it takes to make a fine mechanic, and therefore I was prepared to be surprised when Mrs. Cowan remarked that the microscope was the work of his own hands. The more I examined the instrument, the more astonished I became. People often say, in looking at home-made work like this, that it is wonderfully well done for *hand-work*; but this piece of machinery was the best work I ever saw in my life, of any kind. I mentally figured up the amount of machinery required for the different operations needed, and a little conversation satisfied me that he was expert in the use of the lathe and other mechanical tools. Those who use microscopes have doubtless discovered how necessary it is that every part of the machine should move freely, but, at the same time, should never move so easily as to move of its own accord. It never occurred to me, until I saw friend Cowan's instrument, that a device could be made to allow these heavy parts not only to move just right, but keep moving just right. Not only is every portion of the instrument adjustable in every direction, but the friction with which the parts move is also adjustable; and at any time any part can be made to work a little tighter or a little looser, by a slight turning of minute screws. A great many times I have felt impatient because of the length of time it takes to accomplish anything with the microscope, or to exhibit it to friends. Now, although this instrument is remarkably strong and heavy, our friend handles it with greater rapidity and accuracy than I ever saw anything in the line of optical instruments handled before.

Mr. Cowan was not only the most thoroughly versed man I have ever met or heard of in every thing pertaining to bee culture, but he was equally at home in the department of mechanics. At different periods of his life he has worked at or worked out most of the well-known mechanical problems. I was pleased to hear him tell us about working on perpetual motion, to be run by magnetism. He has made an electric clock, and one that performed well, too, which is more than can be said of the one that I made some years ago. He knew what is possible

in mechanics as well as that which is impossible. Now, do not think me vain when I say it is only once in a great while that I meet those who are capable of conversing in regard to the possibilities and impossibilities in the line of perpetual motion. If there are any among our readers who are now thinking or working on this foolish fancy, let me say to them, you can no more create a perpetual motion by cog-wheels and magnets than you can cheat the great Creator of the universe. You can make wind and water turn wheels, etc., and you can make natural gas run steam-engines, which ought to satisfy anybody; but we can not run any machine without motive power. People who talked about the Keely motor-power which made such a stir a few years ago, need a little rebuking in this line. At one time almost all the papers were against the *Scientific American* because that journal would not admit the claims made for the Keely motor. The *Scientific American* was at home; the matter came right on their own ground, and its editors knew whereof they spoke and wrote. The papers that published the accounts of its success ought to have known better.

Well, after talking a little on perpetual motion, friend C. said, with a bright start, "Oh! I have got a perpetual motion among the things I brought to show you."

He said it in an indifferent way that implied he did not expect it to run sawmills, thrashing-machines, etc.; but I was quite anxious to see it, nevertheless. Now, what do you suppose it was? It was in a microscope-slide that was prepared from an exceedingly thin bit of meteoric stone that fell to our earth in 1879, if I am correct. Pieces of the stone are ground so thin as to be transparent. This transparent film of meteoric stone is then subjected to the enormous magnifying power of something like 5000 diameters. I presume that earnest seekers for what God has given us to hunt out, placed this stone under the microscope to see if they could tell about where it came from, or what there was curious in regard to it. In this thin film of rock they found cavities. These cavities are full of liquid. Now, mind you, the stone, when it fell to the earth, was red-hot. How can the liquid be found there now? No one can tell. Well, in this liquid is a little bubble resembling an air-bubble in microscopic work; and this minute bubble, almost as small as any thing in the shape of insect-life can exist, is continually bounding and rebounding from one side of the cavity to the other. It seems as if it were almost alive, for it is never still. Now, an ordinary observer who has not studied the problem of perpetual motion, probably would not see any thing curious or wonderful about it; but it was to me at once one of the greatest curiosities of my life. Why should this bubble keep moving? It does not take any power to move it; in fact, the breath that stirs the wing of an insect would be a hurricane, almost, compared with the small amount of force needed to keep this tiny speck bumping around. The question is, What force keeps up this motion? It is at present one of the curiosities

of the scientific world, because there is absolutely no force known to man that will account for the motions of this uneasy little atom. Does it run all the time? Friend C. said it had always been running since it had belonged to him, and that he had watched it for hours together, to see if he could discover any thing that might give any possible clew to the propelling power. There is only a limited number of these microscopic curiosities in the world, and they are sold at a very high price.

Friend Cowan took a stroll in our grounds. He named the plants of America—that is, giving them their botanical name—about as easily as you would name the plants in your own garden. I presume many of the plants he had never seen before at all. We occasionally meet men who are deeply versed in regard to botany, entomology, astronomy, mechanics, or the fine arts; but it is very seldom indeed that we meet an individual who is sharp and keen on *all* these things. Friend Cowan seems to have cared to explore all Nature's labyrinths and resources; and, mind you, these explorations have not been made principally to satisfy his own notions: the end and aim of his work is for the benefit of his fellow-men. In our issue for May 1, p. 366, we made mention of a couple of pamphlets. One of these tells how to make an extractor and a bellows smoker; the other is in regard to securing extracted and comb honey, and the prevention of swarming.

Some one asked whether he should call friend C. "doctor" or "professor." He replied quietly, "Neither, if you please." But I see on the Guide-Book Pamphlets the following letters: F. G. S., which means, I presume, Fellow of the Geological Society; and F. R. M. S., which I also presume stands for Fellow of the Royal Microscopic Society. And last, but not least, he is editor of the *British Bee Journal*; and it seems to me it is not only the people of England who are to be congratulated upon their having such an able man, but I feel sure that the whole world will be better for his labors and researches.

Friend Cowan is a member of the Church of England; and it was not until I hunted up some of his old letters that I discovered what a very earnest, pure-minded, and high-toned Christian he is. Since I have seen the man, and talked with him face to face, the letters he has written to me in years past have a new meaning; and I presume, dear friends, such might be the case with many more, if it were possible for me to meet you all face to face; and while this is not possible in this world, who knows of the possibilities in that life over and beyond this? For we are sure that "eye hath not seen, nor ear heard, neither have entered into the heart of man, the things that God hath prepared for those who love him."

Now, dear friends, do not think that I mean to forget his good wife, who has been all these years by his side, a faithful student and patient helper. What friend Cowan lacks in the way of volubility, his wife makes up by her good-natured vivacity. Mrs. Root was greatly worried, as a matter

of course, at the thought of entertaining such distinguished guests; but Mrs. C.'s good-natured English ways very soon won a place in Mrs. Root's heart. In addressing her husband, Mrs. Cowan says, "Tom, dear," in a familiar way that was worth ever so much to me. For several days after they went away, my wife would have it over. This single little expression contributed greatly toward making us feel at home and acquainted. May God bless our two English friends wherever they go; and I presume that one secret of their vast fund of information is the fact that they have both traveled much.

A HOUSE-APIARY, AND ONE THAT IS MANAGED SUCCESSFULLY.

A COMMUNICATION FROM THE INVENTOR OF THE PEET QUEEN-CAGE.

WITH a good deal of pleasure I had been contemplating a trip to the above apiary for some time, remembering a similar visit about two years ago. Blue-Point Apiary is owned by Mr. M. G. Young, of Brooklyn, N. Y., and is located at Highland, Ulster Co., N. Y., a beautiful village nestling among the hills that overlook the grand and beautiful river Hudson. To get to Highland from New York you have your choice of three routes; viz., West Shore R. R., N. Y. Central R. R., and steamboat "Mary Powell." The latter was my choice, as I am passionately fond of sailing, and a brief respite from the dust and dirt of the city and its legion of railroads was a recreation of itself, and I appreciated it fully as I sat upon the deck and drank in the delightful breeze that fanned our heated bodies, which were almost cooked by the long 96° in-the-shade stretch of weather. But our bodies, being a good deal like the weather in our climate (very elastic), it did not take long to cool them off, and make us begin to feel a little uncomfortable the other way; however, this condition is easily remedied by simply walking inside the cabin, and accommodating yourself to a luxurious chair. This is just what your humble servant did, and spent the remainder of the steamboat part of the journey in admiring and studying human nature as it is phased among a promiscuous crowd traveling for pleasure on the Hudson River. I could write some very amusing notes of observation in this line, but it would be out of order in this article.

On taking a tour of observation now, I found we had gotten as far along as Newburgh; and being reminded by the inner man that it was time to attend to his wants, and that I yet had time before arriving at my get-off place to do so, I repaired to the lower deck, or cabin, where I found the required refreshments; and with an appetite made keen by the bracing mountain air, satisfied that inner man to the astonishment of my pocket-book.

Soon we arrived at Poughkeepsie, where I was to leave the steamboat and take (or let it take me) a small steam launch, or ferry-boat, and cross the river to Highland. Arriving at the dock, my good friend was awaiting me, and right glad I was to find him there; for the night was dark and the country strange, and his home some two miles from the river, necessitating a walk through the woods by path and road, up hill and down—mostly up; but following close to my friend Young, who seemed to be

perfectly at home among these hills, we soon arrived at Blue-Point Apiary, the writer about "played out," and ready to seek the welcome cot, where we were soon ensconced; and, listening to the monotonous music of the katydid, we soon slept the sleep of the weary, awakening only when the light of the coming day shone into my room, and the sound of nature's orchestra falling upon my ears. I was soon into my clothes, and out enjoying the loveliness of the country, as only a city clerk can appreciate to the full.

After breakfast, a visit to my friend's pets, the bees, was in order. Mr. Y. is thoroughly a house-apiarist. He hasn't a colony outside of the house. He has two bee-houses, situated about half a mile apart, one accommodating about thirty, the other twenty. The hives are arranged inside in two rows, one on the floor, and the other about four feet above, and occupying two sides of the house, viz., south and east. Experience has taught him that they do not winter well facing the north. The plan of the bee-house is about as follows: Shaped as an L, say 20x14 ft.; this gives him a room on the 14-ft. side for a work-room, about 8 ft. square. The sides opposite the hives are used to store frames, boxes, etc., and to hang up tools, etc., necessary for the apiarist. There is a skylight in the center of the roof, arranged with a wire screen that can be turned over at will by pulling a string. The object of this is twofold. First, it catches all the bees that fly off while manipulating the combs; it also prevents robbers from coming in, and holds them till the manipulator is through with that hive, when a pull of the string turns them all outdoors.

Another advantage, and a big one, for Mr. Y., is in having his bees all in a bee-house. He can go away and leave them locked up, and nothing can meddle with them. He uses a box 3 by 4 inches, with a full-size sheet of fdn. (flat bottom), fastening it with a Mallory fastener. He markets the honey himself; i. e., he seeks a market among grocerymen in Brooklyn, who pay him a good price, appreciating the neat box and clean tidy-looking crate that holds them. Mr. Y. is very successful in wintering his bees just as they stand in the bee-house, simply packing them with chaff or chaff cushions, allowing the entrances to remain open. He has a plan of ventilating the hive, which I will not explain here, as he may not wish me to do so. Mr. Y. has met the foul-brood problem to his sorrow, but he came off a conqueror, I think he said by the Muth system. He could give you some rich experience in that line, if called upon. He has now a very handsome strain of bees, whose qualities for working and gentleness are unsurpassed. Mr. Y. enjoys this little side business very much, as does his wife also, who helps him in a good part of the work. His vocation in Brooklyn being a schoolteacher, he has one day of every week at his disposal, as well as a long vacation in summer, at the beginning of which he moves at once with his family to his Highland apiary, and gathers new strength as well as new honey and ducats, to spend in the winter campaign for souls, for I forgot to tell you that Mr. Y. is the leader of a large mission school, also in Brooklyn. Like the bees he loves, he is a worker.

From Blue-Point Apiary I crossed the old Hudson again, and sought the "Knickerbocker Bee-Farm," located at Pine Plains, N. Y., an account of which I will give you later.

THEO. O. PEET.

Arlington, N. J., Sept. 7, 1887.

AUSTRALIA AS A BEE-COUNTRY.

ANOTHER STATEMENT.

YOUR issue of May 15, 1887, contains a letter from Mr. L. Chambers, lately a South-Australian bee-keeper and manufacturer of apicultural requisites. The tenor of his letter would lead your readers to suppose that bee-keeping in South Australia would be an easy and extremely profitable business. I am sure, from my personal knowledge of Mr. Chambers, that he would not willfully misrepresent our facilities and difficulties in bee-keeping; but his natural enthusiasm has led him into one or two errors which I am desirous of correcting. Our season certainly lasts four or five months; but the honey-flow during that term (except in a few favored localities) is spasmodic and irregular. As to our having no winter—well, compared with your winter, of course, we can't call our wet season a winter; but the last three or four months have proved that we get sufficient cold and wet to stop all brood-raising in Italian stocks.

Mr. Chambers quotes the "red gum" as a producer of many hundred-weights of honey per season. Well, sir, it seems to me a difficult job to give you any thing like a true estimate; but I certainly should like an acre or two of those several-hundred-weight trees in my neighborhood. I think your query as to one hundred pounds per tree is much nearer the mark.

The Italians and their crosses are proving much superior to black, and we are specially favored in having an island set apart by our legislature, for raising Italians only. With regard to that pest, foul brood, nearly all bee-keepers here have had some experience with it; but I never yet met one who had cured it by three sprayings with phenol. As an eradicator of the disease, most of us have found phenol useless; as a preventive, especially useful. Mr. Muth's method with salicylic acid is advocated here, and I personally have found it successful. Mr. Chambers' estimate of 400 or 500 lbs. per colony per season is often realized here; but in most districts, I venture to affirm that that result is exceptional. I append some reports culled by me from a number sent in by members of our bee-keepers' association, and you must understand that they are selected, and do not represent average reports.

TABULATED REPORT OF SOME OF THE BEST YIELDS IN AUSTRALIA.

Number of colonies at beginning of season.	Natural and artificial swarms during season.	Pounds comb honey taken.	Pounds extracted honey taken.	Total.	District.
3	16	210	3360	3570	Mt. Barker Springs.
1	2	267	—	267	Border Town.
1	14	590	1395	1985	Mount Parker.
1	12	700	781	1481	Mitcham.
6	21	1320	—	1320	Humburg Scrub.
3	8	107	512	619	North Adelaide.

The increase mentioned in the second column represents natural and artificial swarms from colonies mentioned in the first column.

With Mr. Chambers, I glory in saying that we have a capital country for honey-producers; but I must also admit, that, like every other country, we have difficulties—bad seasons, and plenty of hard work, before we can have or expect success.

With regard to my own bee-keeping doings, I am not a professional. My bees afford me constant

pleasure, and are, in fact, my hobby; but I must tell you that I find it a hobby that pays its own way, and the last report in the foregoing list is my own.

FREDERIC A. JOYNER.

Adelaide, Australia, July 18, 1887.

Friend J., we are under obligations to you for giving us actual figures in regard to this matter of yields of honey. Thanks, also, in regard to the reports about foul brood. I believe your experience just about agrees with that of Mr. Cowan, as given in his recent visit.

HOW A BEGINNER MADE BEES PAY.

A VISIT TO MRS. CHADDOCK'S APIARY.

MR. ROOT:—I am a beginner in bee culture. I want to tell you my little experience in connection with the work. To begin with, I will tell you that, for the past seven years, I have been living in a country home in Appanoose Co., Iowa, the land of white clover and honey. Three years ago last spring, George B. Replegle, whom I had the good fortune to claim for my neighbor, presented me with one colony of bees. I must confess that I had always gazed at the little creatures with a suspicious eye, and was quite unwilling to approach them. Their actions in the past had not impressed me favorably at all times. But I am always glad to form new acquaintances, and so I determined to become better acquainted with these busy little workers which I now had in my possession, and had allowed to be sheltered in one corner of my front yard.

Their former owner, knowing that I was entirely ignorant of the manners and customs of the bee-tribe, kindly took upon himself the task of instructing me in regard to them, and it was not long until friendly relations were established between us. Well, with occasional lessons I succeeded in managing the inmates of the little dwelling, and prevented their swarming, not wishing more than one colony until my knowledge was extended somewhat. I began a course of reading in *bee-ology*.

Mr. Replegle loaned me the A B C book, also GLEANINGS. I read them with much interest and profit. The following year I went on reading, and the bees went on working. During the summer they increased to three colonies, and, to reward me for my protecting care over them, they gathered in a surplus of honey which tempted me, when I discovered that I might convert the gift they had furnished, into silver. This I did until I found, on counting the pieces, I had sold six dollars' worth of honey.

Last season I increased to eight colonies, and realized \$12.00 from the sale of honey, besides having all the family wanted to eat, which was not a little.

Last spring I sold out, preparatory to moving to Illinois, where I expect to make my future home. My bees brought me between thirty-seven and forty dollars. I felt amply repaid for the little care I gave them, and must say that I am glad for having had the opportunity of forming an acquaintance with the bee-family. I take great pleasure in working with them, and have overcome the nervousness and timidity which I felt at first.

A short time ago I had the pleasure of visiting the apiary of Mrs. Chaddock, who lives about twenty-five miles from my home. I found her sit-

uated in a beautiful country. I had always enjoyed reading her letters in GLEANINGS, which I took one year while in Iowa; and while reading I formed an opinion of the writer. I found her to be just as I expected—get up and dust—willing to let her light shine. She took me out to see her bees, showed me the hives and fixtures she had gotten of you. I found many objects of interest at her beautiful home, which indicates that she has not been idle, and I hope she may live long and have health to enjoy the fruits of her labor.

As I have been suffering so much lately from rheumatism I have been to a great deal of expense, and did not feel that I could spare a dollar for GLEANINGS. Mrs. Chaddock kindly gave me some of hers and other late bee-journals to read. I have been offered, since coming to Canton, ten colonies of Italians to work with next year on shares. Every thing is to be furnished me—I to do the work, and to receive half the honey and half the increase. I can have them two years. Do you think that a fair offer? Should I move them this fall, or wait until spring? They are in Langstroth hives.

MRS. R. J. CURRY.

Canton, Fulton Co., Ill., Sept. 12, 1887.

If you want my opinion in regard to taking bees on shares, Mrs. C., I don't believe that any one who has had the success you seem to have had can afford to do any thing of that sort. Buy your bees, even if you buy only a couple of colonies to commence with. If, however, you prefer the "shares" plan, the offer you mention seems to be a good one. As you state it, I believe I would move them this fall.

FOUL BROOD "ACCORDING TO HOYLE."

SOME FURTHER SUGGESTIONS AND THEORIES REGARDING THE DISEASE.

IT is with the greatest degree of interest that I read your experiments with foul brood, given in each issue of GLEANINGS. I am glad to see you so cautious in coming to a decision as to the nature and cure of this disease; as your conclusions, right or wrong, will have great weight with the fraternity. Although you are very conservative on the subject, I conclude, from deductions you have made, that you are biased in favor of some theory. This is what I refer to. When the disease disappeared from your apiary, you thought you had cured it. Naturally; but when the disease reappeared, you gave it as your opinion that the disease had been covered up all that time, and that when you let them get near the starvation-point they got down to the disease. Now, is this conclusion supported by any thing we know, or have reason to suppose concerning the disease? I think not; any way, I want to reason with you on the matter.

We will suppose, for the sake of argument, that bacteria is the prime cause of the disease, and that it is conveyed in the honey. It is natural to suppose it gets in the honey when the honey is placed in cells where diseased larvæ had been. Suppose such were the case, would they not have eaten the affected honey first? Or let us suppose that the affected honey was some you had fed them, and it was all placed up next the top-bar, would not the top-bar have been reached in some combs in the apiary

long before the disease reappeared? Well, you will say, how did it reappear? Not being there, I could not say positively, and I don't know that I could if I were there; but from what you said at the time, I should judge that the larvæ in the hives affected were neglected by the bees, and, being weak for want of sufficient food, were attacked by bacteria. Bees will not feed the larvæ plentifully when their stores are low; and before they use it all they will quit feeding them and move them from the hive. When foul brood is in an apiary, and it is not so bad but that you can distinguish a difference in some colonies, these are the colonies which have it worst, other things being equal: Artificial colonies, where the larvæ are out of proportion to the nurse-bees, and get insufficient attention; where there is a puny queen; where there is a drone-layer or fertile workers.

You have evidence enough in GLEANINGS that the disease sometimes gets well of itself; but you believe in the germ theory, and you call such cases a "mild type." There is only one way to distinguish the mild type (?) from the genuine foul brood: The former gets well, the latter doesn't. That is the only difference. There is no doubt but that the larvæ of the former are killed just as dead, and in as great a proportion, and smell equally bad as the larvæ in a genuine case, other conditions being the same, of course. There are as many different phases of this disease as there are different causes, which accounts for the different descriptions of it.

I had the disease this last summer in my Whistler apiary (that which I had two years ago was in Mobile), that surpassed any case that I can call to mind. The disease reached its height of development in two weeks; that is, the combs containing larvæ were turned a bluish black. Even theappings were stained through. I do not believe over 25 per cent of the larvæ hatched. If this state of things had continued two months they would have all died. In that event it would have been a genuine case; as it was, it turned out to be only a mild type(?). It was very dry, and the bees were gathering honey-dew; the spring flowers had ceased to bloom. There came a good rain, which stopped the supply of honey-dew, and they, having very little in their hives, and plenty of nectar stored, gradually got well. Of course, if they had gathered considerable of that honey-dew, and it was not taken away, it would have been fatal. Bad water may have assisted in causing the disease—I can't say; but any way, I can't help believing the rain saved them.

I see you have a friend investigating the subject with the microscope. I hope he will be successful, and tell us something new about it. Now, if your friend were a first-class chemist as well as a microscopist, and would use both sciences in his investigations, I have no doubt but that he could tell us, very soon, something new and valuable; but with the microscope alone I hardly think he can do more than verify the experiments of Cheshire and others.

Through the chemists we learn what to eat, what to give our horses, cows, hogs, chickens, etc. They could tell us, no doubt, what foreign substance there was in the honey that caused bad results, or tell us if it lacked some essential thing. When bees are fed phenol, probably a chemist could tell us what percentage it was to the juices of the larva by which it was received. If he could learn that, he could easily tell if carbolic acid would cure the disease, by putting the same proportion in the compo-

sition in which he raises bacteria. That is, of course, if bacteria were the prime cause of the disease; but I think you will conclude before long that it is not. I hope so, anyhow. GEO. H. HOYLE.

Mobile, Ala., Sept. 10, 1887.

Many thanks for your kind words, friend H. It is true, I am conservative on the subject of foul brood, and it is hard for me to be otherwise; but I am not biased in favor of some theory. So many theories that I have entertained in regard to foul brood have been overthrown by some developments in the apiary, that I haven't thought it advisable to be guided by any of them to any great extent, however plausible they may have seemed. When the disease disappeared and then broke out after a period of six weeks, I inferred that the germs had been covered up, and then, as the stores of the bees began to decrease, said germs were uncovered, and so gave rise to the reappearance of the disease. This inference I made because others had said the same thing. Now, I don't know that this conclusion is supported by any thing that we *know*; in fact, there are very few things indeed that we *do know* positively about foul brood; but the development of certain facts often leads us to draw certain inferences which may be entirely false. You propose another theory for the entire absence and final reappearance of foul brood—that, in consequence of decreasing stores, the bees neglected the larvæ. The latter, thus weakened, were made more susceptible to the germs of the disease, which were probably present all the time; but as the larvæ had been previously kept healthy, they were enabled to throw off the influences of the disease. I am aware that a person in perfect health can enter infected districts with very much less liability of catching contagion than one who is less strong and less healthy. In the absence of more positive facts and data, I shall be just as ready, and perhaps more so, to accept this explanation than that the bees had eaten their stores down to the point where foul-brood germs existed.

I know that it has been suggested that there is a mild and a malignant form of foul brood—the one curable and the other incurable. From *Our Own Apiary* of last issue you will see that I express myself rather decidedly that such is not the case. I did so, however, because of what Mr. Cowan had said. Mr. C. has been all over the world, and has examined microscopically specimens of foul brood in his travels, and yet he finds that the bacillus alvei are in all cases identically the same. I know there is, apparently, a mild and a malignant form, and I have noticed the same thing among our bees. In one colony the disease will make rapid inroads, the brood becoming rotten within ten days from the time the disease made its first appearance. In another colony I have noticed only an occasional diseased cell, sometimes all trace of former infection being gone. Such colonies I have left to themselves, to see how it would turn out. Sometimes the disease appeared, and then it would disappear for a period of perhaps two months, at the end of which time an examination showed an occa-

sional cell of foul brood. Now, I can not help but think that the disease was identically the same in both the mild and virulent attacks. In the former, the bees strove so vigorously against the inroads of foul brood that they were enabled to keep it subjugated. In the latter, while the disease made rapid advances, the bees seemed to give it up as a bad job, from first to last. Why this difference? The most probable explanation, and the one which I think by far the most satisfactory to my own mind, is this: In those colonies where the disease seemed unable to make a very bad start, I observed that there was a very large number of young bees. Noting this fact, I told the boys to put a frame or two of hatching brood in the colonies which were most diseased. What did those little fellows do when they hatched out? Just as soon as they began to assume their duties as nurse-bees, they cleaned the combs up nice and sweet. We found that a frame of hatching brood did, in every case, make a vast difference in the amount of foul brood in the hive. Some might suggest, "Why would not this be a good way to cure foul brood?" It would, for the time being; but the trouble is, that, after these combs are nicely cleaned out, eggs, larvæ, and sealed brood nicely under way, three or four combs will become diseased. If, on the contrary, a frame of hatching brood were given to the colony at regular intervals of, say, once in three weeks, the young bees will keep the hive in pretty respectable shape. In a word, then, I think the reason why the disease makes greater inroads in some colonies than in others, is because of the addition in energy of the bees, and also upon the quantity of young bees present.

In all cases of foul brood that we have had in the apiary, we have never had more than two cases which cured themselves absolutely, and these may yet show their former infection. These colonies, however, never let more than three or four cells remain diseased in the hive at a time.

In regard to your last point, Mr. Frank Cheshire is positive that the bacteria are the prime cause of foul brood. Mr. T. W. Cowan is not so sure of it. He says that the fact that these bacteria are always present is not necessarily a proof that they are the *cause*. But this is a question for the doctors to settle.

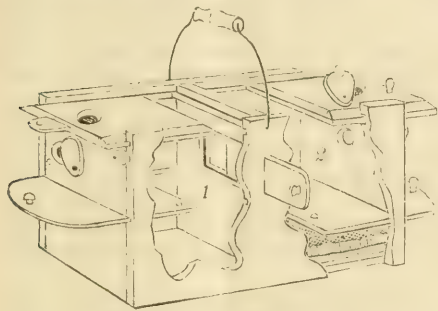
BEE-HUNTING IN TWO CHAPTERS.

CHAPTER I.

VALUABLE FACTS ON THE SUBJECT.

IN presenting this subject to the readers of *GLEANINGS* I shall attempt to present only my ideas and methods. Perhaps some of the older bee-hunters who read this may have a "better way" of their own. Some thoughtless persons denounce bee-hunting as the work of a lazy man. I beg to differ with them. The successful bee-hunter must be a careful, observing, and persevering man. Bee-hunting may not pay financially; but a few days during vacation, spent in rambling through the woods, will have a beneficial effect up-

on our health, well worth the seeking. Many times I have found a natural curiosity, or a rare flower for analysis, which well repaid me for the day's tramp. Again, when I commenced bee-hunting I was so ignorant about bees that I thought they carried honey on their legs, and gathered wax from flowers. I took a colony from the woods, and began studying them. The result is, that to-day I am a full-fledged bee-keeper, and am very thankful that I learned to hunt bees.



GOULD'S BEE-HUNTING BOX.

Some hunters prefer very simple arrangements for hunting bees, such as a plain box or a tumbler, and a piece of comb. The box shown in the A B C may do very well, but I could not content myself with any of these. My hunting-box is $5\frac{1}{2}$ by 10 by $5\frac{1}{2}$ inches deep, and is made of $\frac{3}{4}$ stuff. Cherry or walnut is best, as the sun will not warp either, nor the rain swell them, so that the slides become immovable. The box is equally divided (crosswise) by a partition, which comes up even with the top of the box. Near the top of the partition, a hole $1\frac{1}{2}$ inches square is made, which may be closed by a slide that projects through the side of the box. For convenience we will call the apartments No. 1 and No. 2. Both have a sliding cover, similar to chalk-boxes. Each apartment has a slide. In No. 1 the slide is 2 inches above the bottom; but in No. 2, only 1 inch. Above the slide, in the end of No. 1, is a window, the size of a half-dollar, which may be darkened by a sliding cover. Near the end of the cover to No. 1 is a round hole, 1 inch in diameter, which may be closed by a slide fitted into the under side of the cover. In the cover to No. 2 is a window, the size of a silver dollar, with the glass fitted in the under side of the cover, so as to make the lower side perfectly smooth. This window may be darkened by a swinging slide which is fastened to the cover with a screw. In the end of No. 2, near the top, is a hole the size of a dime. This is also to be covered by a small swinging slide which should be screwed down tight enough to hold it in any position; for should it get loose we might lose the bees when carrying to another stand. This small hole is used when we wish to let out only one bee at a time. Beneath the slide in No. 2 should be kept a piece of comb about 4 inches square; and beneath the slide in No. 1 are kept vials of paint and brush for marking bees, and a cup and paddle for catching them. By using tacks in the inner ends of the slides, they may be kept from falling out of the box. We should also carry four or five extra pieces of comb.

For bee-feed, or bait, I use thin sugar syrup, when unpurified honey can not be had. Never use thick honey. Carry a good supply of bee-feed. I

use a pint bottle with a rubber-cork arrangement, from a beer-bottle, to carry the feed in (putting a bad thing to a good use, you know). A beginner had better go two or three miles away from tame bees; but an experienced hunter will have good success near large apiaries. Bees may be hunted any time when they can work. But the best time is when there is a scarcity of honey, or work for the bees only a part of the day, as during buck-wheat bloom. Start them early in the day; and as soon as the flowers cease secreting nectar, you will have plenty of bees at work.

Select a place where you will have a good chance for lining. Take all of the combs out of the box, except one in No. 2, which should be filled with the bee-feed; close the box; open the slide in the partition; uncover both windows, and open the slide to the entrance-hole in the cover to No. 1. Put feed in one of the extra combs, and place it beside the box; and somewhere on the stand stick a scented feather unless you are near an apiary. The bee-scent which I use is 12 parts oil of anise, 2 parts oil of rhodium, and 1 part oil of fireweed. I carry the feathers in a leather sheath. Never carry scented feathers or the bottle of scent in the bee-box; for should your combs get scented it is almost impossible to run wild bees near an apiary.

When catching bees I use a small pepper-box (without the cover), with an awl-hole through the bottom, and a little paddle about two inches by three. Catch the bee as it is gathering honey from a flower. It will immediately go toward the light which comes through the awl-hole. Place the paddle on the slide in the cover to No. 1, so as to slide the cup on to the cover over the entrance-hole. The bee will immediately go down into the box, if you darken the awl-hole with your finger, when the slide should be closed. Now darken the window to No. 1, and the bee will go toward the light in No. 2. As soon as it can be seen buzzing against the glass, close the opening in the partition, and darken the window. The bee will then settle on the comb and commence to feed. This operation may be done in less time than it takes to tell how. It will take the bee three or four minutes to fill. Meanwhile we can be catching other bees and leave them in either apartment.

The directions given in the A B C book for lining bees are good. But don't depend very much on the first lines. When they have made several trips, and have established a line of flight, they will usually go directly toward the tree. Note accurately the time when you let out the first bee, and when the first one comes back. From this you can form some idea of the distance to the tree. After you have the bees at work well, mark *one* bee with paint from one of the vials in the bee-box. Be careful not to daub the bee. The slightest touch is sufficient, and will remain on the bee several days. Then time the bee. You will need to watch the combs closely. Timing bees is a very important item in bee-hunting. Bees vary in their flight. But I have found that on an average they will fly a mile in five minutes, and spend about two minutes in the hive or tree. Of course, they will spend more time in a tree when they have to crawl a long distance to get to the brood-nest, hence we may deduce the rule: Subtract two from the number of minutes absent, and divide by ten. The quotient is the number of miles from the stand to the tree. (See GLEANINGS, 1887, page 431.) This applies to a

partially wooded country. Perhaps in a clearing they could make better time. On a very windy day it takes them longer to make trips.

Fremont, Mich.

W. E. GOULD.

(Concluded next issue.)

PREPARING BEE-CELLARS.

DO WE NEED TO GO TO MUCH PAINS AND EXPENSE
IN THE MATTER?

IT was with much interest that I read Dr. Miller's article on "Ventilating Bee-Cellars," in GLEANINGS for Aug. 15. By using a process of reasoning, he tries to establish something as a fact; but for all this the reasoning is so lacking in logic that scarcely any thing more than theory is brought out. This the doctor seems to realize; for he winds up by asking, "Where is the man who knows that ventilation for a bee-cellar is *not* needed?" Now, I feel a good deal as the doctor does when he says, "It is not very safe for me to be very positive about any thing that I think I know about bees;" nevertheless, as the doctor has given his reasons in support of "that I think I know," I wish to give my reasons for believing he is wrong, and answer his questions in the affirmative.

Eleven years ago I built my present bee-cellar, and, reasoning as Bro. Miller does, I provided for sub-ventilation in connection with direct ventilation from above. To make sure of plenty of pure air, I made these ventilators large, so that, with a brisk wind blowing, with the mercury at 10° above zero, outside, I could in one hour reduce the temperature inside from 45° down to the freezing-point, by throwing both wide open. After experimenting a spell along the line of rapid change of air, I became convinced that such was a positive injury to the bees, for the commotion caused did not subside for two or three days afterward. Without dwelling upon the items I will say that I was led step by step to where the sub-ventilator was left entirely closed, and the other, or direct upper ventilator, three-fourths so. In this way I wintered with fair success until my high-pressure experiment with the oil-stove, resulting in nearly a total loss, as the readers will all remember. Whether this loss occurred from too warm a temperature, or the gases from the oil-stove, I have never solved. It might have been from too much ventilation, as the ventilators were run nearly full blast all that winter. But, to return.

The next winter I resolved on no more artificial heat of any kind, and not to allow the temperature to go lower than 43°. I shut the upper ventilator (the sub-ventilator being filled up with two feet of dirt at the outer end) as tight as I could close it in all zero weather and below. Skipping over the minutiae I will say that, by degrees, I got so I left this upper ventilator closed for weeks at a time till last winter, when it was closed after the bees had been in the cellar for about two weeks, and left so till the bees were set out, and I never had bees winter as perfectly before. Of course, the bees got a little direct outside air every two weeks when I went in to see them; but as I must open and close four doors, inclosing three dead-air spaces, the direct fresh air that went in with me was very little indeed. This cellar is built on purpose for bees, in a side hill, and will hold 75 colonies, leaving me an alley-way, or 100

if packed solid full. I had about 50 colonies in it last winter. By keeping all ventilation shut off as above, the control of temperature was absolutely perfect. Three days of 10 to 20° below zero did not change the temperature inside one degree, nor did the same number of days with 60° above zero affect it more; while all through, the bees kept a perfect quiet, except as occasionally a colony broke the cluster to go after a new supply of honey. Twenty-five dollars would not have persuaded me to have those doors left open one single night during a warm spell, as brothers Miller and Root think so necessary. Friend Root, at the close of brother M.'s article, speaks of "trouble in cellar wintering." Unless I am mistaken, Mr. Root has never tried cellar wintering. It will not do to compare a bee-house above ground with a good bee-cellar. If it were bee-house or outdoor, I should say outdoor every time. From the above the doctor will see that I am "the man" to say that ventilation is *not* needed. Do I say that my cellar had no ventilation? No, I only say that it had *no special* ventilation. Listen:

Van Rittenkoff, who is the best of authority on this subject, says: "For every square yard of wall surface, at 9½° Fahr. difference of temperature, the spontaneous ventilation, or passage of air through the wall, amounts per hour to

4.7	cubic feet,	with walls of	sandstone.
6.5	"	"	" limestone.
7.9	"	"	" brick.
14.4	"	"	" mud."

Does the doctor now think that "doors wide open" are necessary? Again, P. H. Elwood, who is far ahead of the most of us apiarists regarding the science of ventilation, gives, if I understand him correctly, 200 colonies of bees as requiring less air than an ordinary man. Does not brother M. think he could get along with perfect ease, as far as air is concerned, in his bee-cellar all winter? I think I could in mine, built for only 75 to 100 colonies. Let us hear from others, as winter is near by, and we "want to know, you know."

Borodino, N. Y.

G. M. DOOLITTLE.

Now, old friend, you are wrong this time, and I am a little surprised, too, for you hardly ever make a mistake, even in regard to something that happened years ago. I wintered bees in the cellar, I think for three winters, and the last time they were so uneasy they made the cellar too warm. Besides, the smell of that cellar was decidedly unpleasant and uncomfortable. I tried to make the bees go back into their hives by ventilating, opening the doors and windows nights, etc., but I did not succeed. I think the bees in the cellar pretty much all died. One colony that I bought of a neighbor, and left outdoors, wintered nicely, just as my neighbor's bees did. The figures you give show how much air will get through the wall where no dirt is banked up on the outside; and where the soil is on Medina clay, and that pretty well soaked with water, I don't believe you get as much air as your table gives. I am very glad of these figures, however, for I have long been aware that both air and water pass through stone with more or less facility. It was after I had such bad success wintering in the cellar that I built my bee-house above ground, which I described at the time in the *American Bee Journal*.

COMB HONEY MADE BY MACHINERY.

THE END OF PROF. WILEY'S "SCIENTIFIC PLEAS-
ANTRY."

FRIEND Newman, of the *A. B. J.*, brings out a good point in the following remarks, which he gets off in one of his happiest veins of humor; and one who has heard him talk at our conventions will almost see him face to face while they read:

The "scientific pleasantries," which has made the name of Wiley so infamous throughout the world, and which was so greedily "caught up" and enlarged upon by sensational newspapers, with sundry variations to "spice up the story," has at last come to grief!

It ran like lightning! Factory after factory was built (in imagination), fitted up by special machinery to make the comb. But, alas! when cornered by a demand to point them out, the "loud-mouthed" prevaricators found it impossible to find even one!

When taunted with the offer of a thousand dollars to lead a committee of investigators to the spot where such a factory existed—lo, it had vanished out of sight!

Indaunted falsifiers said that such institutions were running day and night, filling fraudulent combs with glucose—but when pressed to name the number, street, and city—they failed to find any such place—even hundreds of dollars were tendered for a sight of such a place!

Then the runners who visit country merchants, gloated over the sensation and averred most positively that such honey-combs made of paraffine, filled with glucose, and sealed over by machinery, could be found on sale by the ton in Chicago. But when offered \$500 to conduct us to the place and witness the process, they were forced to acknowledge that they, too, had been duped by the Wiley lie, and that they had added variations to make a spicy sensation!

Lawyers, doctors, and even ministers were caught in the act of villifying an honest pursuit, having swallowed Wiley's "scientific pleasantries," without suspecting that it might be an un-scientific and unpleasant falsehood!

Nevertheless, the story ran like wild-fire—news-papers and correspondents added to it, to suit their fancy, and varied it to make it spicy, until the pursuit of bee-keeping was, like a bleeding lamb, sacrificed to their Moloch; and bee-keepers were derided and mocked when they attempted to deny the story and prove its falsity! But now that scientific pleasantries have been struck by lightning, exposing all its baseness, deformity, and falsehood—for

"Truth crushed to earth will rise again;
The eternal years of God are hers."

The sun, whose burning rays dried up vegetation and destroyed the honey-producing plants, and thus prevented the bees from gathering nectar from the flowers, has also scorched and dried up Wiley's lie, so that it will never more show its loathsome head!

The markets of the world are bereft of honey! The merchants' demands for nice honey in the comb are incessant. They advertise for it: write to apiarists for it, and offer "golden shekels" for it! Still there is not nearly enough to half supply the demand, even though the prices go up higher and higher every week!

Since writing the above paragraph, a honey merchant of Kansas City called at this office. He is scouring the country—east and west—to find nice honey in the comb, offering cash for it at the apiarists' doors.

Now, here for weeks and months has the "golden opportunity" been presented, as Mr. Dibbern puts it on page 584, "for these mythical factories to run night and day to supply the demand" for glucose in paraffine combs! Let them bring on the fraudulent article, "the combs of which are made by machinery, from paraffine, filled with glucose and sealed by hot irons!" Show up the beautiful stuff, which is such "a good imitation that only an expert can tell it from the genuine article gathered by the bees from nature's finest flowers!" Yes, exhibit the tons of it produced by "running the machinery night and day!" Now is the time for the frauds to show up! Forward! March to the front!

Dare any one say, that, if such machinery existed—if such manufactured "comb honey" were to be had—that it would not be forced upon the market in such quantities as to fill the present urgent demand? A rich harvest is here presented—but NOT A POUND of the bogus stuff is presented for sale at any price!—a confession that the so-called "scientific pleasantries" is a pernicious falsehood! a villainous, debasing, and diabolical lie which was struck by lightning and literally burned up by the fierce rays of old Sol at the same time that they destroyed the nectar of the flowers, and starved myriads of bees to death!

Ta ta "scientific pleasantries!"

Be gone, vile monster!

Thy sulphurous breath shall no more befoul that God-given, heaven-distilled sweetness—delicious honey!

AN A B C SCHOLAR'S SUCCESS.

A GOOD REPORT FOR 1887.

I MIGHT state at the outset, that I have been helped over the hard places by a careful perusal of your *A B C*, and the regular visits of *GLEANINGS*. I think it would not be discreet for me to go into all the details, as I am only an *A B C* scholar, but I will try to remember the advice of the editor of our church paper, which is, in substance, to study brevity in all communications.

In the spring of 1886 I sent a postal card to a bee-keeper a few miles from home, inquiring if he had any swarms to dispose of, and in a short time I received word that I could be accommodated. I drove over the first fine day, and, after inspecting the stock, bought two swarms (pure Italians). The bees knew fully as much about me as I knew about them; but I commenced to read, and soon became greatly interested in the little workers. Hearing so many reports of a discouraging nature from old-time bee-keepers, I concluded to run them for comb honey, and save buying an extractor. However, I managed to secure the encouraging surplus of about five pounds; but as they increased to six average swarms, amply provisioned for winter, I did not grumble. The next thing to consider then was the wintering problem. From what I had read and gleaned from different sources I was rather in favor of chaff hives, and on wet days and odd spells I made two. They are constructed on the single-story principle, with movable sides, etc., an ordinary Simplicity body being used for surplus. Cushions for the chaff hives were made out of the large sacks our binding-twine comes in. When filled with suitable chaff they answer very nicely. The two chaff hives were wintered on summer stands, with no protection from fences or shrubbery, having perhaps thirty pounds of honey each in September, 1886. I examined them April 1, 1887, and found them in good condition, and with nearly half their stores left. The other four I placed in the cellar Dec. 1, expecting the temperature to be over forty. As the polar waves crept around with icy breath, the thermometer went down almost to the freezing-point. I made up my mind the cellar was too cool, and that it was all up with the bees. I made a practice of going down cellar nearly every night, with a lamp, of course, as the cellar was as dark as midnight, poking my nose and ears up to the entrances, expecting they would succumb; but they weathered the blast and came out fair in the spring, with no signs of spring dwindling.

Now for the harvest of 1887. From my six

swarms, spring count, I have taken a little over 900 lbs. of honey, nearly all extracted, and increased to 16. Of that amount, the two chaff hives gave 440, leaving less than 500 for the cellar colonies. The best yield for a short term was 11 lbs. per day for five consecutive days from alsike. The largest surplus for the season was taken from a hybrid stock. One chaff hive contained a pure queen. The other was from a pure mother, but mated with a neighbor's blacks. On the 30th of June I had taken 130 lbs. from the Italian stock, and 127 lbs. from the hybrid stock, so you see it was nip and tuck between them, but the Italians swarmed first and got behind. I find a ready home market for what honey I have to dispose of, at ten cents per pound.

Nearly all my swarms require feeding. Since the basswood ceased to yield honey it has been very poor for the bees. Most of the queens have quit laying. Less than an acre of buckwheat kept brood-rearing booming through August. Goldenrod was very little good, owing to the extreme drought which still continues. W. H. TAYLOR.

Derryville, Ont., Can., Sept. 15, 1887.

CROSSNESS SOMETIMES A BORN TRAIT IN BEES.

SOMETHING FURTHER ABOUT THAT SPRING.

ON page 682, Ernest says: "Bees may be made cross by one of two ways; namely, robbing and rough handling." Yes, and bees are sometimes cross without any robbing or handling of any kind; they are born so.

I had a colony of bees once (I bought the queen of you) that stung people, chickens, dogs, and cats, if it they went within ten feet of the hive. It was during a good honey-yield, when robbing does not occur, and the bees had not been handled for, I suppose, at least six weeks. This was the colony that I tried carbolic acid on, and that stung me till my fingers swelled up as hard and stiff as hoe-handles. Some bees are like some children, naturally cross. If I were giving advice to a beginner who had cross bees, I would say, "Don't let them whip you out; stand over them and smoke them till they surrender. Bees that follow one around had better be killed, as recommended. The loss is nothing.

You say, on page 697, "I had not dared to ask God to send me a spring where there were no indications that there might be one; but in his loving kindness he had given us something we did not even ask for." Mr. Root, your account of the finding of the spring, your thankfulness, and all the uses you have made of it, read like a psalm. It is beautiful; but down deep in your inner consciousness, do you not know that that water had been stored up there for hundreds, perhaps thousands of years? And as you were not then in existence, how could it have been put there for you? I like to read those papers of yours; you have faith enough to almost move mountains, but of course you know that, when the wild Indian roamed over Medina Co., if there had come a drought, and he had been digging around with his hatchet, and had happened to strike the right place, the spring would have burst forth for him just as it did for you. MAHALA B. CHADDOCK.

Vermont, Ill., Sept. 21, 1887.

I declare, Mrs. Chaddock, I thought I had hit the nail on the head the last time. Well, I will try again. Bees may be made cross in

one of three ways—namely, robbing, rough handling, and, as Josh Billings says, a "bad borning." Now, if anybody else makes a suggestion, I just *won't* say that bees may be made cross in one of four ways.

Ernest has answered you in regard to the cross bees, but the part in regard to the spring is referred to me, of course. Why, bless your heart, my good friend, you are arguing on the same side of the question, and yet you don't seem to know it. To be sure, the water, as well as the coal and oil and gas, has been stored up in the ground for thousands of years, waiting for God's children to get it out; but are they any less God's gifts to his loved ones? We have neither time nor space to go into the doctrine of election and foreordination, but I think my reasoning is good. To put it the other way, God knows the future. He knew just what sort of a chap I would be, and, in accordance with it, placed these things where I would find them, even though he did it ages and ages ago; or, if you choose, put it another way, and say that in answer to my prayers, he impressed it on my mind to go and look in such and such places for his gifts. It does not make any difference to me what doctrine some of my friends hold. God answers my prayers, and fills my life with blessings like the spring and these other things I have told you of. But these are all treasures of this earth. On another page I have tried to tell you something about the treasures of the world to come.

REPORTS ENCOURAGING.

ENCOURAGING INDEED! I. R. GOOD'S FORTUNES HAVE CHANGED.

ABOUT one week ago, many of my bees were in a starving condition, the strongest having but a very little honey. Boneset and some of the early varieties of goldenrod were in full bloom, but there was not a drop of honey for the bees to gather. The wind was from the north, and the weather very cool. Several nights there was almost a frost. About that time I went up town and ordered some sugar for winter stores for my bees; but before I commenced feeding, the wind changed to the south, and the weather grew very warm. Yesterday it was 90° in the shade, and such a honey-flow as we have had for the last four days I never saw at this time of year. Many of my colonies have more honey already than they need for winter stores, and I am extremely happy. A few days more of favorable weather, and they will all have a great plenty to winter on, and Mrs. G. can take the sugar to make syrup for the babies. I shall get no surplus honey worth syeaking of, but up to date I have sold over \$600 worth of bees and queens, and I shall have about 40 more colonies to go into winter quarters than I started with in spring. Last year, nice comb honey went begging at from 8 to 10 cents per pound. Our merchants are now offering from 15 to 18 cents, but can't get any at even that price. I believe the scarcity of honey this year is a blessing in disguise to the bee-keepers. I. R. GOOD.

Nappanee, Ind., Sept. 5, 1887.

Bees are gathering honey at a good rate now from buckwheat, which is very plentiful here.

W. B. STEPHENS.

Stephens Mills, N. Y., Aug. 15, 1887.

I thought our season for honey was about over a week ago, but it has broken out afresh.

Beatrice, Neb., Sept. 6, 1887. J. R. CRAIG.

I have taken 300 pounds of comb honey from 5 colonies of bees, increased to 12, and sold 2. How is that for an A B C?

JOSEPH B. CLARK.

Cornwall Landing, N. Y., Aug. 4, 1887.

We have had four years' scarcity of honey, but this year is some better than the three years before this.

W. D. THARP.

Williamsburgh, N. C.

SOMETHING TO BE THANKFUL FOR.

Although the honey season has been almost a complete failure in this section, my bees have increased from 22 colonies, spring count, to 36 colonies, and have made me almost an average of 25 lbs. of comb honey to the colony, spring count, which makes me feel as though I can truly say that I have something to be thankful for, and feel as though I can be modeled to fit the business, and make it a successful occupation.

I. T. GOULD.

Corunna, Mich.

INCREASE A SUCCESS, BUT HONEY A FAILURE.

My experience this summer has been a perfect success in the accumulation of bees, but the honey crop was a failure. I went into the winter with 60 swarms in chaff hives. I lost 2 and sold 24, leaving 36 to commence the season. My first swarm came out June 3d, and I now have 88, besides losing a good many. For one week I could not control them. They had a mania for leaving. My experience was like M. E. Kimsey's, as stated in July 15th No. The bees would leave the hive, after staying three or four days, with considerable comb but no brood. What surplus honey I have had was from early young swarms.

J. DELAMATER.

Brooklyn, Mich.

BUCKWHEAT HONEY AND HONEY-DEW MIXED, FOR BEE-FEED.

The bees are booming here just now, and have been for some time, on honey-dew and buckwheat. I sowed about three acres of buckwheat the 15th of August, and it is in full blast now. If the frost stays off long enough it will make a crop of seed. I have a small patch that I sowed early that is well filled. I bought five swarms of bees the first of August at 25 cents a swarm. They were about to starve, and the man said he wasn't able to buy sugar to feed them. I fed them a few weeks and then they had lots of brood started, and are booming now. Do you think the bees will winter on the honey-dew they are gathering? It looks clear, like the buckwheat honey. May be they are mixing it. The honey-dew is only on the hickory-trees, for I can not find any on any other kind of tree. The drought has been severe here this season, and is not over yet, as far as water in the wells is concerned. The creeks and small streams are all dried up. Some have to haul water. I wish that man with so much "energy" could have been here this season to raise us some honey to eat with our buckwheat cakes this winter. We shall have to buy sorghum for a spread. I didn't get any honey this year, and

don't know of any one around here who did. I know of a dozen or more swarms of bees starving for my neighbors.

F. P. HISH.

Henton, Ills., Sept. 19, 1887.

Friend H., it is pretty hard to answer in regard to the safety of honey-dew for winter stores. A good many reports are to the effect that it is safe for winter, while a good many other reports would seem to indicate it unsafe. We shall have to bear in mind, however, that, while the former is positive, the latter is very uncertain, for it is extremely difficult to tell what killed the bees and what did not kill them. If honey-dew is comparatively clear, tastes well, and is nicely sealed over, I think I would risk it.

REPORTS DISCOURAGING.

AN OFF YEAR, BUT HONEY UP TO 20 CENTS.

THIS has been an off year in nearly every thing here. There has been no honey since white clover, and but little then. There is no fruit. Corn is hardly half a crop. There has been no rain for two months. The grass is all dried and burned up, and stock are suffering from lack of water. Comb honey is worth 20 cents at retail here, and none to be had at that. My bees have been in a starving condition since the last of white clover, and they would have starved had I not fed them. I commenced in the spring of 1886 with one weak colony of black bees in a box hive. I bought a select tested queen of you, and divided, making two, which I wintered successfully. From these two hives, spring count, I now have ten fair colonies, all in L. hives, with Italian queens, but it took work to do it. I am very anxious to winter all successfully.

O. T. HANSFORD.

Mt. Clare, W. Va., Sept. 12, 1887.

This has been the worst year I ever saw. W. T. Zink, of Junction City, Mo., was here a few days ago, and told me he had good strong colonies that had not a pound of honey in their brood-chamber, and would get no surplus at all.

S. S. LAWING.

Henderson, Mo.

DISCOURAGING FOR TEXAS.

You may put me in Reports Discouraging, for my hopes are not quite blasted, except for this year. I had 44 hives, spring count. I bought 25 empty double hives for the season, which cost me \$1.42 at home. I lost 6 colonies, and fed \$8.00 worth of sugar. About a third of my bees have no stores on hand. I have not taken a bit of honey this year. In some neighborhoods, bees have done tolerably well. The people will almost starve here, as there has been nothing raised to live on, on account of drought, which still prevails. I can only say, "God's will be done." I am trying to trust him for all, doing what my hands find to do. The two smokers came to Stringer and Roundtree. They still stick to the pledge. May God bless you and the Home of the Honey-Bees, and its inmates.

J. H. MORROW.

Dripping Springs, Hays Co., Texas.

NOT ONE DROP OF HONEY.

My bees have not furnished me one drop of honey this year; and the prospect now is that I shall have to feed all through the coming winter. I suppose I

shall have to go into Blasted Hopes, but it is the first time in 22 years. I can not blame my little pets, for it has been so dry here that it was impossible for the fall blooms to mature, and at this writing it is still dry. We had a very good white-clover crop; but for some unaccountable cause it did not secrete honey sufficient to keep the bees living.

Berthaville, Mo., Aug. 24, 1887. A. T. DOYLE.

"BUG-JUICE;" IS IT SAFE TO LET THE BEES WINTER ON IT?

For two months my bees have not made a living. I have bought sugar, and have part of them fed, but here comes a flow of bug-juice. I hardly know whether to call it a misfortune or a blessing. If they do not get too much they will use it before cold weather; but if it continues a week at the present rate they will fill their hives full. The honey is very thick, and tastes a little like bumble-bee honey. They are getting it off the willows. The twigs are almost black with bugs. They are on the chestnut, oak, and hickory. It does not taste like the honey-dew of 1884, but is a good deal better. It is so thick I could not extract it if I wanted to. I might remove the four center combs, put in empty ones, and feed sugar. What would you do?

WM. WITHROW.

Paint Valley, O., Sept. 19, 1887.

You would be on the safer side to remove the four center combs and feed syrup, though I am inclined to think the honey-dew you describe would be safe enough. While no doubt the bug-juice has been responsible for some of the winter losses, yet we have had several reports where bees have wintered very successfully on this honey-dew. See page 686, last issue.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE USE OF DIVISION-BOARDS.

I BOUGHT a one-story chaff hive of you this summer, but I did not get my bees in it until July 13th. I don't think they will quite fill the ten bottom frames. Would you advise me to take some of the outside frames out and use a chaff division-board on each side, such as you describe in your price list, or do you use them only in the Simplicity hive? If I use them, will the brood-frames need to be the same distance apart for wintering, and how many full ones will it require to winter them, without feeding this fall?

Huntsville, Pa., Aug. 22, 1887. W. H. HUDSON.

We use the chaff division-board on each side of the bees in the brood-chamber of chaff hives. In wintering, contract the brood-chamber by taking out the frames until there is just enough left to hold all the bees in the hive. For wintering, it is better to space the frames a little further apart than in summer; and be careful that they have enough feed in the frames you do leave in.

BEES AND FRUIT: THE ANTS AND NOT THE BEES THE GUILTY CULPRITS.

I notice in GLEANINGS, Sept. 1, page 662, that Mr. Berry is inclined to think the Italians will eat fruit worse than other bees; but I think it is just as you say—the bees could find nothing else, and it

was eat peaches or starve. I have Italian bees, and we had quite a crop of peaches this year, and I have never seen a bee on them. A great many of them were partly eaten by ants, thus giving the bees a chance to eat them. The bees have been gathering honey very fast the past two weeks. Friend Doolittle recommends preparing bees for winter the last of August or first of September. I have no doubt it is best in that locality to prepare thus early; but this month is generally the best we have for surplus honey, as we do not have much clover honey and no basswood.

Linn, Kan., Sept. 10, 1887. J. T. VANPETTEN.

Friend V., you will have to make allowances for difference in locality for all the teachings in GLEANINGS. Friend Doolittle is away up in York State, and you are away down south in Kansas. Of course, you can not make preparations for winter while the bees are storing honey. I think friend D. simply means this: As soon as it is probable that no more honey of any account will be gathered, make all necessary arrangements for wintering, in the way of stores and whatever else is needed.

MINERAL WOOL: QUESTIONS BY AN A B C SCHOLAR.

I am a member of your A B C class, but I can not find any answer to the following question: Would it be advisable to feed bees a little at the close of the fall honey-flow, so that they would be stimulated to cure and cap all of their unfinished honey-cells for winter use? I am a beginner in bee-keeping, and I have six colonies of Italians. The season has been so bad that I have scarcely any spring honey, and am dependent on buckwheat for winter supply, and that yields very poorly; for example, I have six colonies of bees within 500 yards of as fine a field of buckwheat as any one would wish to see (8 acres), and my bees have gathered hardly enough for winter use—not a pound of surplus. Have you tried mineral wool for packing hives to winter on summer stands? I intend to try it this winter. As it is indestructible, I imagine it can be used over and over again to good advantage.

F. SCHMIDT.

Millington, N. J., Sept. 16, 1887.

What you propose is exactly right. Feed the bees until they cap the cells over with nice sealed stores.—We have never tried mineral wool, but have had samples sent us. We have no doubt it would answer quite well. However, by reason of its expense and extra weight for packing material, we should very much prefer chaff. It is true, that mineral wool would never rot; but we have chaff hives in use now that were packed with chaff ten years ago, and we can not discover but that the packing is nearly if not quite as good now as when first put into the hives.

SUCCESSFUL IN SPITE OF THE SEASON.

The queen received of you in April has acquitted herself most splendidly, and the progeny of queens raised from her are fine yellow bees. We gave the queen and half-pound of bees three frames of brood, and have drawn on them frequently for brood since; still, through all the honey famine they have kept very strong, on very little feed. The season here was showery, and favorable until in July, when the drought set in. Still, there was no honey, and some hives were entirely destitute of stores. On the 13th

of August we had a bountiful rain, and the bees are now at work on the fall flowers, of which we have an abundance, so we hope for some surplus, as we labored to have our dish right side up. Twenty-three colonies in the spring we increased by artificial swarming to thirty-nine. There is a question we want to ask you or your readers: What is the probable cause of the disappearance of young laying queens that have been found to be laying, and apparently robust and healthy? We have lost five all together, some of them recently, after having been in the hive and laying all right for some time.

MRS. M. COLE.

My good friend Mrs. C., I don't know that I can answer your question about the disappearance of your laying queens. Two or three times I have noticed something like it, and was beginning to suspect there was some enemy gained access to the hives, that pitched directly for the queen; but as they stopped disappearing, the matter was dropped, and I thought no more about it.

ARE BEES LIABLE TO DIE AFTER A POOR HONEY SEASON?

I can not let this time slip without giving a warning note to bee-keepers on the wintering of bees for the following winter, on account of our protracted and extensive drought. Our hives are hardly as heavy as they were in the spring. Some are on the point of starving. My bees have had nothing since fruit blossomed, except a light run on basswood. They have about entirely quit raising young bees; and unless they are fed to induce late breeding there will be none but old bees to go into winter quarters, and consequently they will die by the wholesale. I remember nearly 20 years ago we had an extensive and very dry fall. That time my bees worked on white clover till July 20, but got nothing after that. Next spring, accounts from all parts of the country told of bees dying by wholesale. Some thought the honey was poisonous, as they nearly all had plenty of honey. Many complaints came from Ohio. Some of the old bee-keepers will remember it. That winter, of 41 colonies I lost all but one. Several years after that we had two dry falls in succession, in which I lost two-thirds of my stocks each year. Two of my neighbors lost their entire stocks. One lost 20, the other over 40 colonies, all by dwindling, all being alive when set out, and other years I have seen the same result from an absence of fall honey, though not so marked.

Rockton, Ill., Aug. 8, 1887. WILLIAM HOLLEY.

WIVES THE BEST JUDGES OF HOUSEHOLD CONVENIENCES.

I have a question to ask. Why don't husbands let their wives do their own planning? Now, do not think I want my husband to know nothing of my work or needs, for I know how pleasant an occasional surprise in the way of some new convenience about the house is. If it supplies a long-felt want it is doubly pleasant. To illustrate what I do mean, I will tell a true story. Four years ago, when our little daughter was a tiny girl of twenty months, and our sturdy son, who now turns the wringer for mamma on wash-days, was a wee baby of five months, our washings were heavy for me, and I often told husband I could not do them except for the wringer. This fact, and his desire to

make my work as easy as possible, prompted him to buy a washing-machine. I demurred a little, saying there were other things that I thought we needed more. He insisted that nothing was as necessary as preserving my health, and declared I was working too hard. As we had several workmen, this was true enough, and he ended by saying, "We will have the other things too." Although not convinced, I was silenced (doubtful if I would be now), and the machine was bought. It did help, especially when strong hands turned it; still, many times during the next year I thought if the ten dollars it cost had been placed in my hands to use as I chose for making my work easier it would have helped me more.

Moral.—If you can afford brussels carpets for the whole house, place the amount they would cost in your wife's hands, with the understanding it is to make her work as easy as possible, and it will do it, whether it buys carpets or not.

MRS. FLORA BEACH.

Corydon, Pa., Sept. 12, 1887.

My good friend, you have got Mrs. Root's ideas of this matter exactly; and she has had more than one washing-machine with exactly the result you mention. Almost all of them would do excellently, providing a good-sized man or boy is on hand to use it. In the absence of said commodity, the machine is soon set aside. Of late, every washer that has been presented has been accepted only on trial, and not one has found a permanent place in our home. In fact, every convenience that comes up is turned over to Mrs. Root, before we take hold of it at all; and with few exceptions she puts it exactly as you do: "The device is quite ingenious, and sometimes quite handy; but, my dear husband, I should very much rather have the same amount of money it costs, to buy something else with." Now, I have an opinion too, and a great many times I don't feel satisfied to have something that seems to me a wonderful household convenience turned off in that way; and I believe we come as near having family jars in this line, as we ever do. Of late, however, I wind up by saying, "All right; don't have it under any consideration, if you don't want it." But I do think it is every woman's privilege to have the money an article costs, in place of the article itself, whenever she wishes.

THE WAD OF BEES FROM A KING-BIRD'S CROP.

I am getting no honey this year so far, and I miss it greatly. I have not taken 50 lbs. yet. I never had bees in as good shape at the opening of the season. I have not taken as much honey from 86 colonies this year as I took from one last year. My crop last year was about 6000 lbs., but this season was too dry. We had no lack of flora. White clover bloomed profusely; basswood was as full as I ever saw it; but the continued drought did not permit the secretion of any honey. I trust it will have one good effect—that is, to clean up the surplus stock from last year's accumulation.

In regard to the king-bird's habits, my observations lead me to say that, after he has filled his crop with bees, he has the power to eject the "wad" from his mouth. I have picked up the bunch just as soon as dropped, which consisted of bees in a

compact dry mass of about the size of a large hazelnut. The juices were seemingly all extracted.

Duncan, Ill., Sept. 1, 1887.

W. H. GRAVES.

DOES THE HOT SUN PREVENT BEES FLYING AFTER NECTAR, AND SO REDUCE THE AVERAGE YIELD PER COLONY?

Does the hot sun prevent bees from going a long distance for pasturage? My reason for asking this question is, that, about two miles from my apiary, the bees did well, filling crate after crate with fine white comb honey, while my bees did not gather any at all, and some would have starved had I not fed them. The sun has been very hot this summer, so I concluded that bees could not fly in the hot sun any great distance, and return to their hives safely with a load of honey. I agree with you about foundation. I have a mill for making the flat-bottom foundation, but I shall order one of the other kind next year.

J. P. CALDWELL.

San Marcos, Texas, Aug. 24, 1887.

Friend C., I have sometimes thought that the bees seemed to think it was too hot to work, even when honey was to be had in the fields; but afterward I have had reason to conclude that honey was to be had only by very great toil, or that it was not to be had in paying quantities, except in the cool of the morning or toward evening. Many plants, like the spider plant and the Rocky-Mountain bee-plant, yield nectar only during the night; therefore when honey comes from such sources, the bees are necessarily idle during the heat of the day.

THAT FREE ADVERTISEMENT: A RARE CHANCE.

In looking over back numbers of GLEANINGS I find no answer to Mrs. Chaddock's advertisement. Now, I haven't the mule nor enough honey; but as you are so liberal with "ads." I should like to make an offer. Get one, two, three, or a dozen, to join with you. Pack in your Saratoga a few blankets, all your old clothes (none of your Sunday go to meetin's), plate, cup, and saucer (tin will do), knife, fork, coffee-pot, frying-pan, and some good coffee. A keg of butter and can of lard will not be out of place. Procure a small tent—a large one is not necessary. Come down here on the coast, and camp out; go fishing; go to the oyster-bar; roast and eat oysters; hunt shells on the beach; pull off your shoes, and wade in the surf. Wade in the water generally; fall down; get wet; get up, and go on as if nothing had happened; live out of doors; catch fish, oysters, clams, and you will go home next spring a new woman.

W. J. DRUMRIGHT.

Sarasota, Fla., Sept. 6, 1887.

Friend D., the picture you present is so exceedingly tempting that I am afraid there may be a good many besides Mrs. Chaddock who will take you up, and, of course, we shall come to you first to be initiated. If you mean we can gather oysters ourselves, and roast them on the shell, it would be a big temptation to at least one individual; for my memory does not cling to any dish ever invented for a hungry man that will compare with oysters from the sea-coast, served up in that manner. The getting wet, and going on as if nothing had happened, would suit me to a dot. My wife would soon protest, however, because of my undignified appearance.

THE HONEY BUSINESS.

Can a market always be found for all the honey a man can raise? What is an average yield for a hive, and what money will it bring per pound? What is the first cost of hive complete, including hives, bees, etc.? Is honey-raising a pretty safe thing to go into, or are there any great risks attending it? As clerking does not agree with me, I may have to go into the country, consequently I should like very much to hear from you, as I am much interested in the subject.

ALFRED FAGRET.

Baltimore, Md., Aug. 23, 1887.

Yes, sir, you can find a market for all the honey you can raise. The crop this year has been very light, and prices have come up considerably. There is demand for it all over the country now.—An average yield, per colony, of extracted honey, would be about 75 lbs. Of comb honey, about 50 lbs. The latter will bring from 12 to 20 cents, depending upon the quality. The former, from 10 to 15 cents. The business of honey-production has some risks attending it. The first and greatest is the danger of losing a large percentage of the colonies during winter. In ordinary seasons, with good care, the number of colonies lost during winter should be very small. Another drawback to the business is an occasional poor season, like the present one. I believe, however, that the honey business has no more risks or drawbacks than ordinary occupations. It is light work, and healthful. Moreover, it is an exceedingly interesting study.

CELL-BUILDING.

I have one colony of hybrids I don't understand. Some two weeks since, I began to stimulate them, as there was nothing for them to gather in the woods, and since that time I have cut out seven queen-cells, and they have three or four cells now. They have a nice young queen, only two years old, and as fine a lot of brood as you ever saw. Nor are they crowded for room. Some of the sheets of comb have nothing in them at all.

Veedersburg, Ind., Sept. 8, 1887. A. H. HEATH.

I should be inclined to believe that your stimulative feeding caused the bees to make preparations for swarming, as you said they were building queen-cells. It is possible the queen was defective in some way, and the bees were building cells with the view of superseding her.

GRAPEVINES AND CLOVER.

I have about one acre of land planted with Concord grapes, ten feet apart. I find the shade of the vine a great advantage to my bee-hives, of which I have 40 or 50. I am preparing to sow a bushel of alsike clover instead of red clover on my farm, with timothy. I have had no experience with grapevines and clover on the same land. Will they do together?

WM. CONNELL.

Davidson River, N. C., Aug. 2, 1887.

Friend C., if your vines are only ten feet apart you do not want any thing whatever occupying the ground between them. I am not an experienced grape-grower, but I think the clover would be as detrimental as so many weeds, and you certainly can not get a good crop of grapes from a weedy vineyard.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For our Question-Box."

Question No. 7.—Do you consider that the wintering problem is practically solved? If so, by what method—that is, in the cellar or on the summer stands? J. T. G.

Yes. In the cellar. DR. A. B. MASON.

I do not—in the North. C. C. MILLER.

I do. By use of a good cellar. A. J. COOK.

Yes, I think it is practically solved by both methods. O. O. POPPLETON.

Yes. In the cellar, north of the 42d parallel; outdoors south of it, in the Mississippi Valley. DADANT & SON.

Yes. A good cellar, well ventilated and kept at the proper temperature. MRS. L. HARRISON.

As we winter our bees on their summer stands without any preparation, I can not answer this question. PAUL L. VIALLO.

The proper food and temperature have solved it. Pure cane sugar is a proper food, and the proper temperature can be secured in a cellar. W. Z. HUTCHINSON.

No, not with me. I prefer to use both methods, that I may win somewhere, as does the man who follows mixed farming. Don't get all your eggs in one basket. G. M. DOOLITTLE.

I think the slate will have to be covered over on both sides several times more yet with the figures of that problem before it can honestly be called solved. Just now the hands are mostly up, snapping their fingers, and saying, "Teacher, please help me do this sum." The cellar seems to be a length ahead of the outdoor methods at present. E. E. HASTY.

No, not yet. From reports in the bee-papers, we read of losses every winter, both in doors and out. We winter all on summer stands. For outdoor wintering, give the bees a good windbreak, plenty of good honey, and a deep hive well packed with chaff, or its equal, and there is not much danger. We wintered over 40 last winter in quadruple L. hives, none less than 2 stories, and some of them 3; lost one colony. E. FRANCE.

I consider the problem of wintering bees with certainty completely solved; but as that solution requires capital and extra special manipulation. I do not consider the problem of *practically* wintering bees completely solved. I feel quite positive that the consumption of pollen, either in the form of bee-bread or floating in the honey during a period of continued confinement, is the cause of bee-diarrhea. JAMES HEDDON.

Let me try, friends. Let's see: how shall I word it? Well, I should say the wintering problem is pretty nearly solved by most of the old hands at the business; but notwithstanding this, I am rather expecting that our plans and theories will be most of

them upset by some exceptional winter that is liable to come at almost any time. I have faith, however, to feel pretty sure there are some among our number who will still come out all right, even through this exceptional winter that is somewhere in the future.

Question No. 8.—Is it advisable to arrange the hives in the apiary symmetrically, with reference to each other. What harm results from such arrangement? M.

I think it is. I don't believe any harm results, if the hives are put five or six feet apart. DR. A. B. MASON.

I think so. There is no harm, and room is economized, to say nothing of appearance. A. J. COOK.

Yes, I think so. By a little ingenuity there is no need of loss of queens during fertilization. G. M. DOOLITTLE.

I don't understand the question. We aim to arrange our hives so we can work them handily. E. FRANCE.

Not too much so, especially if they sit quite close together. Harm results mainly from loss of queens. JAMES HEDDON.

For the looks and convenience, it is advisable to do so. No harm results, if they are at least 3 feet apart. PAUL L. VIALLO.

No harm, if they have some trees or landmarks to guide them, and if the hives are painted of different colors. DADANT & SON.

For the convenience of the apiarist, I think it decidedly advisable; and if rightly done, I think no harm results. C. C. MILLER.

I know of no harm from such an arrangement, if hives are not too close together, while the advantages are many. O. O. POPPLETON.

I have almost always kept my bees systematically arranged in the apiary, 6 feet from center to center, hexagonally, and I think the advantages of speedy manipulation overbalance the disadvantages of confusion of bees by various causes. R. WILKIN.

The only harm is, that young queens are sometimes lost, and a returning swarm (when clipping the queen's wings is practiced) sometimes attempts to enter adjoining hives. If the newly hived swarm is left upon the old stand, and the old hive carried to a new location, let this new location be at the end of a row. If a swarm tries to enter the wrong hives, cover the hives with sheets. W. Z. HUTCHINSON.

There is a wise symmetry and there is also an unwise and damaging symmetry. The latter results in loss of queens, and in bees getting into the wrong hives. The former may be made to help against these very same evils. My theory is, that the apiary should be divided into a number of small groups. It requires no great genius to arrange a dozen hives so the form will help rather than hinder. This being done, place as many similar groups as you require, giving each group some locating object; as a big tree or a little tree, or an arbor, or a heap of rocks, or a grape-trellis. Put one group by the side of that little building, and another group on the other side of it; and so on till you have places

enough. Now number each place in the group, and also give each group a number, in some natural order, and you have the whole thing so you can carry it in your mind, and find or record any hive easily without having a number posted up at all. In your memorandum a hive is 5-3 or 11-8 or 13-6; the first number designating the group, and the second the position in the group. My practice is not quite equal to my preaching, as my groups stand rank and file, and do not have locating objects enough.

E. E. HASTY.

I believe I shall side in with friend Hasty; but if I am right, there has been hardly enough said in regard to having the hives differ enough in appearance. I am forced to believe that it is quite unfortunate that it is so expedient in many respects to have hives all exactly alike; and I have been wondering if it would not be well to say, have your hives exactly alike on the inside. Then let the outside show some portico, some Simplicity, some chaff hives, and may be some tenement hives, if the proprietor is not too much averse to the latter; then adopt the grouping plan and you are all right. Our apiary of 500 hives is, as you know, in groups of 7 pretty good-sized apiaries—the greater part of the 500; and at the angles are groups of 6 more, with a smaller number. See the picture of our apiary in the front part of the A B C book. In larger groups, bees do, however, make a good many blunders. While this does little harm in the way of queen-rearing, it probably does more or less harm in throwing two or three dozen bees into some hive not their own, every little while. I wonder if anybody can tell how much harm this latter really does do.

Question No. 9.—Which is cheaper and better in the long run—to purchase a comb-foundation mill and make foundation for your own use (providing you have 150 colonies), or to buy your foundation outright of a dealer?

L. J. W.

Purchase a mill, and make the foundation.

PAUL L. VIALON.

Make your own foundation, if you have that many bees.

O. O. POPPLETON.

Buy it. Who would think of getting machinery to make one buggy?

MRS. L. HARRISON.

I should suppose this would depend upon one's circumstances. From my small experience, I should say it is best to own the machine.

A. J. COOK.

Very much better and cheaper to own a mill or Given press, unless only starters are used in the supers, and no increase in the number of colonies.

DR. A. B. MASON.

I use Foster's molds, and like them much. With them a pound of wax can be worked as well as 50 lbs., and the cost of the machine is but a trifle.

G. M. DOOLITTLE.

It depends on your capacity for handling beeswax. Some apiarists succeed, others get so tired of the business that they sell their mill and buy their foundation.

DADANT & SON.

If you have your own help to work your wax, you had best buy a mill, if your dealer charges you more than 10 cts. per lb. over the value of wax.

R. WILKIN.

That depends. If your time is worth nothing at the time of making, perhaps it is better to buy a mill. If I could get a good price for sawing wood, I think I should rather buy the foundation.

C. C. MILLER.

We bought a 12-inch foundation-machine before we had 150 colonies. I am satisfied it is cheaper. We hire a good deal of help by the month. We make our foundation rainy days, when we have no employment for them at other work.

E. FRANCE.

Recent changes in the manufacture and use of comb foundation cause me to believe that it is better to purchase than to manufacture. I believe this branch of our business will pass into the hands of two or three specialists. Economy and comfort will demand it. Specialty has a myriad of advantages.

JAMES HEDDON.

I suspect that ten years hence some one will read over this question, and laugh merrily. Some of us laugh now. I use less than five dollar's worth of foundation in a year, and, of course, could not afford to run a mill, if it were given to me. I do not deny, however, that there are some apiaries where large amounts of foundation can be profitably used—notably where the honey all comes in one grand rush, and is stored by Italian bees.

E. E. HASTY.

It depends very much upon the man. The making of foundation has no connection with the practical management of an apiary; i. e., there is no reason why a bee-keeper should be a foundation-maker. The interest upon a machine and fixtures will pay freight on foundation, and the time spent in learning and making will nearly pay the profit. Foundation-making is a trade. Let us buy of those who by years of practice have learned how to make a good article. Most of the "fish-bone" in comb honey is the result of foundation bunglingly made by men who think they must have a mill, in the same sense that they have a honey-extractor.

W. Z. HUTCHINSON.

In addition to the reasons given above, I think it depends a good deal on whether the apiarist takes a notion to make his own foundation or not. If you take a notion that you want a nice patch of strawberries, you will have it, especially if the notion holds out. After you get it, and you take a notion you would rather raise strawberries than do any thing else you ever did in your life, you will be quite apt to make a strawberry-farm a paying business. When you get over the notion, the business will begin to run down. Now, this is true not only in bee culture, but in using machines. You can not make very much of a success at any thing unless you put your whole heart in it. Very likely, ten years hence (or may be a little longer) we shall laugh at the idea of one man trying to do so many things, just as we now laugh at the time when our country stores used to keep dry goods, groceries, drugs, books, and boots and shoes besides; and I confess there is much less care and worry, and oftentimes much more satisfaction, in concentrating all our energy on one line of work, and by this means furnishing a product superior to what the world has been in the habit of having.

BEE ENTOMOLOGY,

Or Enemies of Bees Among the Insect Tribe.

SOUTH CAROLINA BEE-STABBER.

INCLOSE a very accurate figure of a bee-deströying bug received from Mr. Swinson, Stateburg, South Carolina. The figure gives accurately the size, form, and markings. It is a very graceful, slender bug, and belongs to a very predaceous group. Their entire life's business seems to be to hunt out and destroy other insects. The scientific name is *Septoglossus phyllopus*, Linn. The specific name "phyllopus" is very appropriate, as it means leaf-like foot, and doubtless was given to this insect by the great Swedish naturalist because of the expanded posterior tibia. The general color is brown, or in some species nearly black. Right here I wish to praise Mr. Swinson's mode of sending insects. He sent several of all ages, each in a little hole by itself, and all in a long narrow pine block. I hope others will take pattern after him.



ANOTHER BEE-STABBER.

A beautiful pure white line extends across the wing-covers, as shown in the figure, which gives a ready means of identifying this bloodthirsty bug. The spines on the posterior femora and tibiae are also interesting. Say had this species from Florida, and described it as *albicinctus*, because of the characteristic white line. Glover says, this insect kills the destructive cabbage-bug at Evergreen, S. C. This cabbage-plant bug, *Strachia histrionica*, is very destructive, as well as quite beautiful. Thus we may conclude that this species that I am now describing does much good, and is well worthy our fostering care, unless it makes too free with the bees, which I hope will not be the case.

Our Southern bee-keepers will easily identify this insect by the white band and broad posterior legs. I am glad to get these, and all species of insects. I wish they would always come in such good shape as did these. Will Mr. Swinson report if he finds these bugs very destructive to his bees? I should not expect such to be the case.

A. J. COOK.

Agricultural College, Mich.

Prof. Cook:—I send you by this mail three or four insects, which I should like you to name. They catch and suck the life out of bees, flies, grasshoppers, etc. If convenient, please name through GLEANINGS.

ALVIN L. HEIM.

Chandler, Ind., Sept. 7, 1887.

Prof. Cook replies:

The insects sent by Alvin L. Heim, Chandler, Ind., are closely allied to the Missouri bee-killer, *Asilus missouriensis*. This is a species of *erax*, and is

smaller than *asilus*. By referring to my Manual, page 317, last edition, a figure of one of these fierce robber-flies will be found. They are reported from the Gulf States as more serious enemies of bees than are the dragon-flies, or bee-hawks, as they are called by bee-keepers.

A. J. COOK.

Agricultural College, Mich.

NOMADA BEES.

Mr. John Burr, Braceville, Ill., sends some beautiful bees of the genus *Nomada*, which he says drive the honey-bees from the sunflowers, and enter the hives of even the crossiest hybrids with no let or hindrance from the hive-bees. These bees were put up in nice shape, and came in fine trim. I am very glad to get wild bees, as I am working on this family, and want all there are in the United States.

These bees are very pretty and very numerous. They have long tongues, short hairs, and much resemble wasps. It is reported that these bees lay their eggs in the nests of other bees, and thus their young are cared for by another—a lazy trick; but until we human mortals cease to get that for which we pay no just equivalent, we must not berate these bees too soundly. They are known in England as "cuckoo bees," from this habit, as the cuckoo of Europe does the same thing—lays its eggs in the nests of other birds, as do our cow-buntings. I often tell children this story, and give my opinion of such a course. I say to them, "We ought all to hatch our own eggs." I wonder if the scent of these cuckoo bees, which is aromatic, does not serve to protect them, and thus enable them to pass safely into the nests of other bees, and possibly into the hive of the honey-bee. Thus it may not be fear that caused Mr. Burr's hybrids to permit their entrance. It was possibly an agreeable odor. "How wonderful are all God's works," and how little we yet know of the things close about us! Thus what an incentive we have to work and study.

Agricultural College, Mich.

A. J. COOK.

BEE BOTANY.

OR, HONEY-PLANTS TO BE NAMED.

ACTINOMERIS SQUARROSA.

MR. ROOT:—I send you a branch of a weed that grows here on our creek bottoms. Can you inform me what it is? It blooms during August and September; grows 5 or 6 feet high, and for a month or six weeks the bees are on it from morning till night.

This locality echoes the cry of nearly everywhere else, "No honey." We shall not get over 200 pounds from our 28 colonies, spring count. About one-half of them did not make a single pound of surplus.

HERBERT BRICKER.

Slate Lick, Pa., Sept. 16, 1887.

Our friends at the Experiment Station reply as follows:

A. I. ROOT:—The specimen you sent from Herbert Bricker is *Actinomeris squarrosa*, Nutt. This is one of our native weeds, often found in fence-rows and old fields, where it is usually troublesome.

EXPERIMENT STATION.

Columbus, Ohio, Sept. 20, 1887.

Per Craig.

Mr. A. I. ROOT:—Inclosed please find a specimen of weed that my bees are busily gathering honey

and pollen from, as I suppose. The weed is generally called horse-weed. I send it to you for the right name. Some stalks at the base will measure an inch or more in diameter, and will grow 6 feet high.

We have had so much dry weather that very many colonies of bees will be lost. JAMES A. STAFF.

Troy, Mo., Aug. 29, 1887.

MR. ROOT:—Can you give me the name of the inclosed plant? CHAS. OLIVER.

Conneautville, Pa., Aug. 28, 1887.

Replying to the above two letters, our friends at the Ohio University say:

The specimen you inclosed, from J. A. Staff, Troy, Mo., is *Ambrosia trifida*, L., horse-weed. The one from Chas. Oliver, Conneautville, Pa., is *Cirsium Virginianum*, Mx., thistle.

EXPERIMENT STATION.

Columbus, Ohio, Sept. 6, 1887.

Per Craig.

ANOTHER GOOD REPORT FOR 1887.

DOES ANYBODY NEED TO BUY A PATENT-RIGHT WHEN HE COMMENCES BEE-KEEPING?

OUR honey-flow was short and sweet. Last winter two-thirds of all the bees in old gums and boxes were killed off. Spring was a little late, but my bees were in fine trim for fruit-bloom, which amounts to some section honey with us, if properly managed in a good season. The fruit-bloom came, and was immense. Every twig was loaded with blossoms, and full of nectar. Bees worked at it two full days, and filled the brood-chamber fairly, when it began to rain, and continued to rain until the fruit and bloom were all ruined.

Next came the locust, which was again very full of nectar; but before the bees had a full start on them the same cold rain came again, and continued nearly two weeks, and the fields were covered with white clover by this time, but it was too cold for the honey to come. After the rain was over, and it got warmer, we got seven days on the white clover, and such a white-clover honey-shower I never witnessed before in this part of the State. Then the white clover was at an end, and since that time they have to work for a living. During that short flow I doubled my stock and secured 25 pounds of honey to each colony. The fall flow is dawning, and we look hopefully forward to that. We often secure a good flow from the asters, boneset, etc.

Don't you think, friend R., your statement is misleading when you say you know of no State, farm, or township right to a patent bee-hive that you would consider worth a copper? Those moth-trap patent-right peddlers just go after such bee-keepers as those who know it all, and who will not stoop to read GLEANINGS. Oh, no! They will pay \$20.00 for a moth-trap, then they proceed to catch moths, and sometimes they discover they are caught.

Mulberry, Pa., Aug. 21, 1887. L. W. LIGHTY.

I am sure, friend L., I do not know where in my statement is misleading in regard to buying a right to make a patent hive. May be the statement was pretty strong; but for all that, I think it pretty safe to err in that way. If somebody who was intending to go into bee culture were thinking of buying a patent-right, I would unhesitatingly say to him, "No, don't do it."

MYSELF AND MY NEIGHBORS.

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal: but lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6: 19, 20.

SOME two or three weeks ago my eye happened to strike the text above, and it came home to me with wonderful force—"Lay not up for yourselves treasures upon earth." The question came to me, Is the inspiring purpose of my life to lay up treasures here on earth, or treasures in heaven? and it troubled me. I am working and planning, inventing and devising, day after day; in fact, I am never contented or at peace unless I am earnestly striving after something in the future. Now, am I really sure that this working and striving is for the kingdom of God and his righteousness? Supposing I succeed in my plans for making garden, secure wonderful crops by the use of fertilizers, irrigation, by the help of the windmill, thorough tilth, etc., what then? Why, then I shall be able to teach others, and it will give me pleasure to see them succeed in having something to do at home with their families. But what then? Well, I tried to reply to this voice that was interrogating me, that, in teaching bee culture, gardening, fish, and strawberries, I should also be able to teach godliness and purity. The latter is the plan I have had before me for many years; but I felt troubled, because I feared I was thinking too much of the treasures this earth can furnish, and not enough of the treasures in heaven, as we have it in our text. Earthly treasures give satisfaction where they are honestly acquired, especially if, in acquiring them, we help our neighbors. But there is another kind of satisfaction that is away beyond this. I am afraid I have not had it much of late. The things of this world have occupied my thoughts rather too much, and I have been reaping the fruits. And this reminded me that it had been some little time since I came into the factory before any one else was there in the morning, and prayed for all of our busy helpers. While these thoughts were in my mind one morning, a little before sunrise I went up into the office and sought the place I had gone to so much—the cloak-room adjoining the office. The special subject of my prayer that morning was, that God would tell me where to put my energies, and in what way to employ the restless activity which seems to be a gift from him. My petition ended something like this: "Lord, tell me what thou wouldst have me to do; and tell me if my work as I am doing it just now is acceptable in thy sight." As I rose up and went down to help the boys off with the market-wagon, there was the peace in my heart that I had felt many times before, after going to my Savior for counsel and advice. In fact, I expected the day would bring some sort of answer to my petition. The message came; and whom do you think the Savior selected to carry this message? In his infinite goodness it was in-

trusted to one of the boys with whom I have got acquainted through GLEANINGS. Yes, it was none other than a young "neighbor" of mine away off down in Florida. While he was perfectly well acquainted with me, I had no knowledge of his existence at all until the morning after that prayer. I was reading my mail as usual, when I found under the paper-weight of "General Matter" a single sheet of paper. On this sheet of paper were the following boyish words:

Dear Uncle Amos:—About a year ago last March father sent for GLEANINGS. I read it a little at first, reading about bees, but I had not any use for the religious part; but finally, after we had had it three or four months, I began to read *Our Homes*, and finally I read that the first thing, and last January they had it sent to me, together with a bound volume for 1885. I sent for *Our Homes*, Parts I. and II., and read them as soon as I got them. Reading your articles lead me to—what? Well, first to read other religious articles; and last Sunday to finally joining the church and showing the world I was going to try to be a Christian. Go on with your good work. You may get others interested; and may God bless you in it!

Last March you said you expected to visit Florida some time. Well, if you do, come and see us if possible. Can't you come this winter? We haven't any bees, but expect to have soon, as we are looking for some hives from you every day. But I have got some garden, "t'other side of that fence" (see p. 177). I have been very much interested in "What to Do," etc. I am the gardener here, and I guess you can imagine how I enjoy it, from my own experience. I haven't very much now, as I have been sick, and it is very dry; but as soon as it rains I am going to plant a big one for you to see when you come. Well, I have written more now than you will ever get time to read, so I will close.

ELMER KECK, age 17.

Bowling Green, Fla., Sept. 17, 1887.

May the Lord bless you, friend Elmer, for this little letter! And did you think, my boy, that Uncle Amos might ever get tired of reading such letters, or be too busy to take the time? Why, such testimony as you give makes me happier than I should be to receive thousands of dollars in the way of orders; and while I use the term "dollars" to make the comparison, I feel ashamed of myself; for treasures in heaven can not be compared at all with treasures on earth. The testimony you give indicates that, through my poor work, at least one of the boys in this wide, heedless, careless world has changed his mind in regard to religious things. It speaks, in fact, of the new birth that I was telling you about a short time ago. It tells that one of the boys who go to make up what we call "Young America" has turned his back on worldly temptations, and united himself with Christian people, and has started in the strait and narrow path from earth to heaven. The minute I read your letter it seemed to me as if the Master were saying, "Mr. Root, don't be troubled, even if you are spending a good deal of time and energy in the pursuit of bee culture, gardening, and other like industries, if, in so doing, you succeed in interesting the boys; and after they have got ac-

quainted with you through the medium of these rural pursuits, lead them to me and it will be time well spent." And, my dear young friend, I am satisfied now that it has been time well spent, although, very likely, I have oftentimes lost sight, somewhat, of the heavenly treasures in the perplexities and cares of this world. Dear child, I want you to pray for your Uncle Amos, that he may be still more useful in the field the Master has accorded him. And now I want to tell you that this little letter opens to me a greater and grander and wider field than ever I looked upon before. Very soon after reading your letter it occurred to me that, by using it for print as I have done, it might be an example to many other boys to follow in the path you have started in. The readers of GLEANINGS have looked on in surprise and wonder, somewhat, to see so many joining the ranks of those who promise to give up tobacco. It is true, that, as a slight inducement, I have offered the tobacco-users a little present by way of remembrance; but in this department, no earthly treasure will be needed. Those who take up the cross to follow Christ do not need any pay. The satisfaction of having done right, and the peace that he only can give, are not to be measured or compared or spoken of as we speak of earthly rewards; and, dear friend Elmer, please believe Uncle Amos when he tells you that you will have battles to fight. Yea, even the publication of this honest, simple little letter of yours may bring you persecution; but be not troubled nor afraid. In the same way they persecuted the great teacher Paul, and the prophets of old. If you have trials and difficulties, it simply indicates that you are in the army of the Lord. Keep your face steadfast toward the great Commander. Don't say any thing back to your persecutors, but tell Christ Jesus of your troubles, and you shall conquer, not only through life, but through death also; for did not the Master lead even grim death captive?

The part of your letter that pleases me most, my young friend, is where you say you have united with the church; and I am glad you did not tell us what denomination it was. It is some body of Christ's people near your home, and that is all we want to know. Now, tremblingly and prayerfully I ask the question, "Is there another soul among the readers of GLEANINGS that has been lately moved to give himself to the Master? or is there is a single one who will stand up as this young friend has done, and say that he wants to be a Christian?" If, through God's providence, GLEANINGS can be made the medium for receiving testimonials to strengthen and encourage others to enlist for the extension of God's kingdom, it will enter upon an era of usefulness that even I, with all the faith that many of you have given me credit for, have never yet dreamed of. Now, boys, what other one is there who has the courage to speak out and say, "I too am on the Lord's side"? What other one is there who wants to commence right *here* and *now* in laying up treasures in heaven, where moth and rust doth not corrupt, and where thieves do not break through nor steal?

TOBACCO COLUMN.

IS THIS DEPARTMENT MANAGED TOO LOOSELY?

I BELIEVE the tobacco question in GLEANINGS is becoming obsolete. For instance, in my case my little granddaughter conceived of a plan to get me a smoker, and so she wrote to you, and the smoker came. Now, the facts are these: I never used tobacco in my life, and you will see by her letter she did not say I would quit, but that I would never use it, and would throw all my influence against its use, which I always have and always will. In nearly all the letters the whole drift is to get a smoker, without money, and not from principle. They nearly all state, "If I ever use it again I will pay for the smoker," thus owning the object to be to get a smoker. Flora's object was to see if you could not be imposed upon. I told her if you sent me one I would pay for it. ELDER C. R. THOMAS.

Morrelton, Ark., Aug. 22, 1887.

My good friend T., you and your little granddaughter undertook to humbug Uncle Amos, and you got humbugged yourselves. Do you not see it? I remember the letter, and I remember thinking it was impossible that a little girl should undertake to deceive me, and so I sent the smoker, thinking I shouldn't lose by it, and I didn't. Very likely a good many are induced to come into this column because of the chances of getting a smoker for nothing. Well, I think it is better to give up tobacco in this way than not to give it up at all.

THE QUANTITY OF TOBACCO & JUICE THAT MAY COME FROM A CHEWER'S MOUTH IN 25 YEARS.

In looking over my old scrap-book the other day I came across a piece that I thought would be the very thing for the Tobacco Column of GLEANINGS. I hope you young boys who chew tobacco, and old ones too, will read this and think about it until you become disgusted with yourselves, and quit. The selection runs as follows:

THE FILTH THAT FROM A CHEWER'S MOUTH PROCEEDS.

Two ounces chewed a day, 'tis said to produce
A full half-pint of vile tobacco juice;
Which, if counted five and twenty years,
As from a calculation it appears,
With this vile stuff would near five hogheads fill;
Besides old quids a larger parcel still;
Nor am I with this calculation done,
He in that time has chewed full half a ton;
A wagon-load of that which would, of course,
Sicken a dog or even kill a horse.
Could he foresee but a single view
What he was in his life destined to chew,
And then the products of his work survey,
He would grow sick and throw his quid away.
Or could the lass, ere she had pledged to be
His loving wife, her future prospects see,
Could she but see that through his mouth would pass
In this short life, this dirty loathsome mass;
Would she consent to take his hand for life,
And, wedded to his filth, become his wife?
And if she would, say, where's that pretty miss
That envies her the lips she has to kiss?

Navasota, Texas.

F. I. SOMERFORD.

A GOOD LAW.

July 1, a law went into effect in Illinois that no one shall sell tobacco to boys under 16, without a written order from the parent. The world does move. Tally one for Illinois! C. C. MILLER.

Marengo, Ill.

After 20 years of tobacco filth, I gave up the habit 10 years ago. It is a great blessing to me to be rid of a filthy habit. Men worship tobacco; that is, it is their god, as you might call it. I do not think I am entitled to a smoker either. If a man has not

mind enough to control it, give him a smoker to assist him. He needs one, for it was the hardest task of my life. I think, "Poor weak man! I can't."

GEO. A. MATHEWS.

Katonah, N. Y., Aug. 28, 1887.

Gently, brother M. If it was the hardest task of *your* life, is it any thing strange that others with less decision of character have failed in the fierce battle? If it helps a man to have a reminder in the shape of a smoker constantly before him, by all means let him have it; and I don't believe it is best to call him weak-minded either.

Mr. E. Pearsy told me that he would quit the use of tobacco if you would send him a smoker. If he ever commences again I will pay for it.

SILAS THRAILKILL.

Barbers Mills, Ind., Aug. 11, 1887.

Please send me a smoker, if you think I am entitled to one, as I quit the use of tobacco three months ago, after using it ten years. I will pay you for it, if I ever commence its use again.

I. T. TALBOT.

Jonah, Williamson Co., Tex., Aug. 3, 1887.

My father has used tobacco for 25 years, and has now quit. He hasn't used any for four months. If he is entitled to a smoker, please send it. If he ever uses the weed again, I will send you the price of the smoker.

JESSE GUERNSEY.

Matherton, Ionia Co., Mich., Aug. 9, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

FOUL BROOD. FEEDING, ETC.

AT the present writing, Sept. 27, we think we have the upper hand of foul brood. Ever since we began using carbolic acid, the disease has spread into no other new colonies; but we find it well nigh impossible to wipe out the disease entirely with acid alone, from the hives under treatment. From my present knowledge, phenol seems to be a success as an antiseptic; but as an eradicator in the colonies where foul brood actually exists, so far it is apparently a failure. From occasional reports in foreign journals, and from now and then letters which pass my eyes, my impressions, as above stated, seem to be verified. I say *impressions*, because I can not think it safe yet to dignify them as facts indisputable.

At the outset, I said we had the upper hand of foul brood. How, then, did we become master of the situation? As the modification of the Jones plan cured the disease, but did not prevent its spread in other colonies; and as carbolic acid apparently failed to wipe out the former infection, but was a good antiseptic, we combined our modification of the Jones plan with the treatment by acids. The *modus operandi* which seems to have cleaned foul brood from the apiary is this: After opening an infected colony we spray the bees thoroughly with a solution of carbolic acid, by means of our large atomizer, the solution being one part acid to 500 parts by weight of water. The old

hive is removed from its stand, and a clean one is substituted. The bees are then all shaken into the new home, and given frames of foundation. The diseased chaff hive is last of all taken away and boiled, in a manner which will be described in a future issue. Thus we not only cure the disease in the colonies themselves, but have prevented its spread into other hives. Most of the hives in our apiary have more or less healthy brood. If the disease were present in any of the hives, it would in all probability have shown itself ere this.

UNITING, AND PREPARING FOR WINTER.

In consequence of not being able to fill orders for bees by the pound, our colonies are very strong, so that we can not double up to the same extent we did last year. The total number of colonies which we shall put into winter quarters will be 250 when all are united—a somewhat larger number than last year, you will perceive. Not only that, but the individual colonies will be, in the majority of cases, double the strength of the average colonies of last year.

It was very difficult, in consequence of the robbers acting so badly, to unite during the day. We did a good deal of it in the evenings, but even then the robbers learned the trick of "staying out nights." Pretty soon the equinox came, accompanied by the usual rainy weather. "Now," said I to the boys one morning, as there was a light cold drizzle, "you will have a capital time for doing all the uniting you wish." The work which had been needing attention was now done with perfect ease. Pretty soon the drizzle turned into a light rain. Mr. Smith came in and said, "Do you think we had better open the hives now?"

"Oh, yes!" said I, "providing *you* can stand it."

I hunted up a rubber overcoat for Mr. Smith (Mr. Spafford having one already on).

When robbers are very bad during pleasant weather, and I am anxious to have preparations for getting the hives in proper winter shape complete, there is nothing that I welcome more than light rainy weather. With an old hat, rubber overcoat, and rubber boots, it is just fun to perform the operations which, during pleasant weather, are just out of the question, because of the persistence of the robbers. This morning, while feeding the bees, I was out during the light rain. What a pleasure it was to open the hives and pour in the feed, without a hundred or so of buzzing bees around! I could set the feeder-can down anywhere, and not be at all afraid that the little pesky thieves would have their noses in it.

Speaking of rubber boots reminds me that my light rubber boots which I mentioned in GLEANINGS last winter are good yet. They cost only \$1.75. They are very light, and are not so disposed to cause sweaty feet as the heavier ones.

WOODEN BUTTER-DISHES AS FEEDERS.

Some of our last-year's subscribers will remember that I gave my preference decidedly in favor of wooden feeders over those constructed of tin. During the cool months of last fall I found that bees would

take feed readily from the wooden feeder, when they would not notice one of tin. The past year I have been looking for some kind of wooden feeder that would be cheap, and yet answer every purpose. A few days since, a correspondent incidentally remarked in his letter, that he had been using wooden butter-dishes with good success.

"There," said I to myself, as I read that, "is just the feeder that I have been looking for."

Taking the letter in my hand I walked over to Mr. Calvert, our buyer, and showed it to him, putting my finger upon the paragraph mentioning the wooden butter-dishes. After he had read it I said, "See what you can do about getting wooden butter-dishes. I believe they would be just the thing, and the cost would be almost nothing. Why, a bee-keeper could afford to buy a couple of hundred of them; and when they were worn out he could burn them up and buy more."

Mr. Calvert, as you remember, wintered our bees successfully one year, and has had considerable to do with feeding. He saw the point at once, and set about immediately to see what he could do in the way of getting some cheap bee-feeders. In the course of a couple of weeks we had a consignment of wooden butter-dishes and—what do you think?—wooden pie-plates—the latter as neat and pretty in design as any thing you ever saw. The sides were scalloped, or corrugated, and the bottom was perfectly flat. It is hardly necessary for me to describe the wooden butter-dishes, as every one of our subscribers has no doubt bought a pound or so of butter in one of these receptacles.

They were left in the crate until rainy weather. Accordingly last night you might have seen me with a syrup-can in one hand and a pack of wooden butter-dishes and pie-plates in the other. I placed one of each kind in the hives I desired to feed; and then with the feeder-can I poured the syrup into one and then into the other. After both were filled I let the drip fall on to a few bees down in the cluster, that they might give notice of what there was above. After having filled all the feeders, I left them until next morning, without making any provision for floats, as I desired to see whether these shallow wooden dishes would require it. This morning I more than half expected to find a few bees drowned. Examination, however, showed that the feed had been licked up clean, and not a bee was seen in any of the feeders. As it continued to rain somewhat this morning, I refilled the wooden dishes, then watched the bees at one of the hives, as they greedily piled over each other, three or four bees high, to get at the feed on the edges of the dish. A few in their haste plunged over into the syrup. I stood holding the cover up, watching and waiting to see whether these bees would be able to get out. They swam along in the syrup; and when they reached the edges of the feeder they caught hold of the wood and shook themselves very much as a dog does when he first comes out of the river. Now, why is it that these wooden

dishes do not require feeder-floats as do tin pans? The answer seems to be this: In metallic receptacles, the bees, in the absence of a feeder-float, will swim to the edge; but on arriving there they are unable to catch hold of the metal. In the butter-dishes, on the contrary, a floating bee, as soon as his foot strikes the rough edges of the wood, the claw grasps the wood and he is safe. He has only to crawl among the bees, and he will be speedily cleaned of his "too much" feed. Another thing in favor of wooden butter-dishes and pie-plates is, that the sides are gently flaring. In an ordinary bread-pan, such as we used last year in feeding, the sides were quite steep, and we found that we were obliged in all cases to use cheese-cloth for a float for the bees, otherwise there would be large numbers of them drowned in the feeder. We have tried these wooden feeders now for three days, and we find scarcely a dead bee in any of them, even without any kind of float whatever.

THEIR COST, AS COMPARED WITH OTHER FEEDERS.

I presume the great majority of you will be able to purchase a few at your grocery store, just to try; but for those of you who are unable to obtain these wooden butter-dishes at your own home, and for those who perhaps would like to purchase 100 or 1000, we append the following prices: Wooden butter-dishes, to hold a pound of feed, $6\frac{1}{2} \times 9$, \$3.50 per 1000; per 100, 40 cts.; or 5 cts. for 10, by express or freight, with other goods. If wanted by mail, 12 cts. extra for 10. The wooden pie-plates, you probably can not obtain near you. We can furnish them for just double the price of the butter-dishes; postage per 10, 12 cts.

One can scarcely realize the cheapness of these feeders until he compares our lowest price for the Simplicity feeder in our price list. Price of these latter per 100 is \$2.50. Set this amount over against 40 cts. per 100 for the wooden butter-dishes, and then you can better understand their low cost.

Now a word in regard to these cheap feeders in comparison with other feeders. From what trial I have been able to give them, I think they work quite as well as the Simplicity trough feeder; though, however, if the price were the same I think I should prefer the Simplicity, as the latter occupies a little less room in the hive. But when we consider the difference in price, my preference would be very much in favor of the butter-dishes and pie-plates. The Simplicity wooden feeders, after a couple of years' use, become dirty, and sometimes soak through, and at times check so as to leak. The price of the butter-dishes is so extremely low that one can well afford to throw them away after one season's use, and use nice new clean feeders next year. Both the Simplicity and the butter-dishes hold one pound of syrup; so also do the pie-plates. These are very pretty, and will answer excellently, no doubt, for baking pies. You can take the pie-plate containing the pie to the picnic, and you won't have to fuss to bring it back; or you can send your pie to a church social, and it does not matter very

much whether the plate is ever returned or not.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 1, 1887.

Thine, O Lord, is the greatness, and the power, and the glory, and the victory, and the majesty: for all that is in the heaven and in the earth is thine: thine is the kingdom, O Lord, and thou art exalted as head above all. 1. CHRON. 29: 11.

We have to-day, Oct. 1, 7649 subscribers.

GOOD NEWS FROM FATHER LANGSTROTH.

The following is just at hand, on a postal card:

Thanks to our heavenly Father, the dark cloud is all gone.
Dayton, O., Sept. 22. L. L. LANGSTROTH.

The "dark cloud" alluded to by our good friend is the brain trouble he has suffered from for so many years. We trust it will keep away long enough so we may be able to get something from him for our pages once more, if he feels equal to the task.

COMMERCIAL TERMS.

A GREAT many of our readers do not understand the meaning of certain commercial terms used in the quotations of honey. In reply to a number of inquiries, Mr. Muth makes the following explanation:

FRIEND ROOT: The expression, "on arrival," means that honey (like other goods) brings the stipulated price at wharf or depot here. It is the net price, no charges being made for hauling, storage, commission, etc. It does not mean that we will take, at that price, all the honey arrived at our wharves or depots. We buy all we want at the range of those prices, and have been liberally supplied by our friends, so far. "In the jobbing way" means the price honey brings when it passes out of the hands of the wholesaler into those of the retailer.
Cincinnati, Ohio, Sept. 20, 1887. CHAS. F. MUTH.

MERRYBANKS AND HIS NEIGHBOR.

THIS is a little book of 210 pages and 68 illustrations. The older readers of GLEANINGS will not need to be told what it is about. To our younger, or new readers, I will say that it is a book treating of bees (and hive-making), gardening, maple-sugar making, and other rural industries. It has also a good deal to say about our homes, and was written specially for the juvenile readers of GLEANINGS. More than all, it treats of one particular home that was started on a sandy foundation, but eventually became built on the rock Christ Jesus. The price of the book is 25 cts.; 10 copies, \$2.00; 100, \$18.00. If wanted by mail, add 3c each for postage.

THE HONEY-MARKET AT THE PRESENT DATE.

WELL, friends, we are getting some extracted honey at the prices offered in our last issue, so we shall not raise our offer any more just yet. And, by the way, it is quite interesting to look over the market-reports, to which we refer you on page 724. Please note what a great variation there is in prices. Our friends in St. Louis and some other points don't seem to have wakened up yet to the fact that honey is worth a great deal more money than it

was a few months ago. Yesterday, Sept. 28, I stepped into friend Kendel's, in Cleveland, and there was not a pound of honey to be seen, of any sort—good, bad, or indifferent. It looked a little funny, for the reason that I can not remember the time before in years back when there was not at least some sort of refuse or culled stock pushed back out of the way. It is now all sold out clean, and every pound is gone almost as soon as he gets it; and, in fact, I do not remember of seeing a single case of honey in the city of Cleveland.

QUEENLESSNESS IN OCTOBER—A CAUTION.

ALMOST every fall, when the weather begins to get cold, a great many of the younger ones order queens, saying their colonies have suddenly become queenless. The reason why they declare them to be queenless is because they can find neither eggs nor brood. Well, when we send them a new queen, they find it impossible, of course, to introduce her, and then they discover they had a queen already. Now, remember, friends, that, as a rule, you will find no eggs nor brood at this season of the year. While the weather is warm, and honey comes, the queen will often commence to lay, and a little brood may be seen in October and November; but these are the exceptions. After a rest of a month or two, however, brood-rearing generally commences, and is kept up more or less till spring; that is, where colonies are strong. We are glad to furnish you queens, but we don't like to see you waste your money uselessly; therefore remember, the absence of eggs and brood at this season is no evidence of queenlessness; and as the queens are small and insignificant looking now, if you are not careful you will not find them. If you can not find the queen, and feel troubled about it, give them a little unsealed brood from some other colony, in case you can find it to give them; and then if they start queen-cells you may be sure the queen is gone.

FRIENDLY RELATIONS BETWEEN THE EDITORS OF THE BEE-JOURNALS OF THE WORLD.

We are to-day, Sept. 29, honored by the presence of Mr. Ivar S. Young, editor of *Tidskrift for Biskjot-sel* (*Journal of Apiculture*), of Christiania, Norway. Brother Young is a big man in a good many ways. I do not know how much he weighs aivordupois, nor exactly how wide he is across his big broad shoulders; but I do know that he has a kindly and generous heart withal, and that he is wide and large and liberal in his views, and in his genial friendly good nature toward all humanity. A few hours ago we knew hardly enough about Norway to be able to say, without consulting a map, just where it is located; but his visit has opened our eyes to the fact that a great people, and a very friendly people, are across the water reading our bee-journals, and profiting by the improvements that are coming up so rapidly. What a responsibility rests upon the shoulders of the editors of our bee-journals! and what a grand thing it is for those who have been heretofore separated by thousands of miles, and great expanses of water, to talk face to face, compare notes, and exchange friendly and neighborly greetings! For myself, I begin to feel too small for the place I occupy: and many times, when I think of the great field before us, and these loving hearts ready to extend a friendly hand of greeting, that little prayer of mine comes up again involuntarily, "Lord, help!"

THE HONEY FROM TEXAS.

SOUTHERN HONEY IN GENERAL; HOW IT COMPARES WITH OUR BEST GRADES OF THE NORTH.

MR. ROOT:—I send you by express two sections of honey, representing the two grades of my crop. As Texas honey has no standing in the markets I want your opinion of this honey, fully expressed; and I especially want to know how these two pieces of honey compare with what is quoted as "white" and "dark" in the markets. As your decision will be of interest to your Texas subscribers, please answer through GLEANINGS.

J. S. WHITE.

Dodd City, Fannin Co., Texas, Sept. 16, 1887.

Friend W., I have examined carefully both sections. In appearance the dark section looks very much like our buckwheat honey; but for table use I should consider it rather inferior. In fact, if you didn't know it to be otherwise, I should say it was pretty near honey-dew. Such honey with us is very slow sale; but perhaps during this very dry season it might bring 10 or 12 cts. per pound. The other compares quite favorably with our nicest comb honey in appearance; but when we tested it on our supper-table, side by side with our clover and basswood honey, no one wanted it. At first taste it seems very fair; but there is an after-taste much resembling the horsemint honey that we had some years ago; and most of the Southern honey that I have got hold of is somewhat of this rank flavor. The looks would probably sell it; but if there were a considerable quantity of it I am afraid that customers would complain that it did not have the right sort of taste for honey looking so handsome. Just at present, while our basswood and clover honey brings from 18 to 20 cts., I think your best sample might sell for from 14 to 16 cts.

SPECIAL NOTICES.

RUBBER TIRES FOR CARPET-SWEEPERS.

MANY times, after a carpet-sweeper has been used for some time the tires on the wheel become worn or loose. We are prepared to furnish new rubber tires for Ladies' Friend and Gosben sweepers, at 10 cts. each, or 90 cts. per doz. By mail, 2 cts. each extra.

24-LB. DOUBLE-TIER SHIPPING-CASES.

OUR 24-lb. single-tier case has become so popular that the old-style double-tier case has rather gone to the background. Some, however, prefer a double-tier case. We have quite a large stock that we wish to close out; and to do so we offer them at the following low prices: Single case, in flat, no glass, 15 cts.; in lots of 10, \$1.25; 100, \$10.00. Glass for same, 8x13 $\frac{1}{2}$ in, in lots of 10 sheets, 60 cts. Per box of 64 sheets, \$2.50.

DISCOUNT ON GOODS BOUGHT THIS FALL FOR NEXT SEASON'S USE.

UNTIL further notice we will give a discount of ten per cent on goods strictly for next season's use, except the following: Machinery of all kinds for manufacturing; all tin and glass honey-receptacles; tin plate, and all counter goods. On Simplicity, portico, and chaff hives, we can give only five per cent. The principal goods included under the 10% discount are foundation, frames, sections, zinc, extractors, comb-foundation machines.

PRICE OF PASTEBOARD BOXES FOR 1-LB. SECTIONS
REDUCED.

We have succeeded in buying these 1-lb. section cartons so low that we are able to make a reduction in price of nearly one-third. We can now furnish them at 75 cts. per 100; \$6.00 per 1000, or \$55.00 for 10,000, no labels. See our adv't on cover, for further particulars.

TWENTY-FIVE GROSS OF BUCKEYE SASH-LOCKS.

SINCE we first began selling these locks we have disposed of thirty gross, because of their popularity. Just a few days ago we received 25 gross from the factory. By buying so many we are able to reduce the price in quantity a little. Prices are 5 cts. each; 50 cts. per doz., or \$4.00 per 100. By mail, 3 cts. each, or 30 cts. per doz. extra. Nickel-plated ones, one cent each more than above. For further particulars, see our adv't on the cover for Oct. 15.

CLOVER AND BASSWOOD EXTRACTED HONEY.

We have secured about 500 lbs. of last year's crop clover extracted honey, very nice, that we can sell, as soon as it arrives, at the following prices: In cases of 120 lbs., 12 cts. per lb.; 60 lbs., $1\frac{1}{2}$ cts. Less than 60 lbs., 14 cts. per lb., cans included. We have also secured some basswood extracted honey that we can sell at one cent below above prices. We still have some California honey at 4 cts. below above price of clover. We also have six 50-lb. iron-jacket cans of fall honey, almost equal to the California, that we offer at 7 cts. per lb.

MAPLE SYRUP.

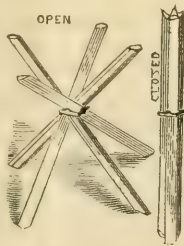
We still have on hand in excellent condition a good deal of the syrup mentioned in this column last spring. Prices as follows: 1 gallon, \$1.10; 10 gallons, in 1-gallon cans, \$10.00; 5 gallons, in 5-gallon square can, \$5.00. As honey is so scarce, I presume this syrup will go off on short notice. We mail sample free on application. Our stock of maple sugar is very low at present, as we shipped nearly four tons to New York a few weeks ago. If any of our readers have any to dispose of, please let us hear from you, with samples.

A FOUR-COLOR LABEL, FOR ONLY 75 CTS. PER
THOUSAND.

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is $2\frac{1}{2}$ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A FOLDING TUB-STAND.

THE adjoining cut shows a very handy contrivance for all those who use a wash-tub, and who do not possess a wringer and tub-stand combined. One of the advantages of this stand is, that it takes so little room when not in use. A great many use an old chair, that has lost its back, for a tub-stand; but when not in use, it is in the way, and not a very handsome object, while the one shown above folds up and is laid away till it is wanted again. This stand just fits a No. 1 size tub; and though so simple and light, it is so strong that it will stand firmly under almost any weight. The sticks are of ash. The price of the folding tub-stand is 25 cts. each; \$2.20 for 10, or \$20.00 per 100.



HORSE-POWER in Texas For Sale.

Nearly new, and all complete. To make a quick sale I will take \$25.00 for it. C. W. COSTELLO, 19tfd
Waterboro, York Co., Maine.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3tfd



DALY HAMMERLESS. DALY THREE BARREL.
MANHATTAN HAMMERLESS. PIEPER BREECH LOADERS.
Send for Catalogue of Specialties.
SCHOVERLING, DALY & GALES,
84 and 86 Chambers Street, New York.

BEE-KEEPERS, TAKE NOTICE.

I will, from now until Jan. 1, 1888, sell V-groove one-piece basswood sections, made on A. I. Root's new improved machinery, at the following prices: First-class, all white, at \$2.25 per 1000, and second-class at \$1.90 per 1000. Send a 2-cent stamp and get a sample of them. Address R. H. SCHMIDT, 19d
Caroline, Shawano Co., Wis.

TEN PER CENT reduction from regular prices for fdn. and Simp. bives in the flat, until Jan. 1, 1888.
E. C. LONG, Williamsville, Erie Co., N. Y.

FOLDING BOXES.

Our Cartons for enclosing Section Honey are the **best & lowest priced** in the market. Made in one piece. With or without Tape Handles. With Mica Fronts or without. In the Flat or set up. Printed or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. **Price List Free, Samples 5c.**
14 oz. Glass Jars \$5.25 per gross, including Corks & Labels. 11-2 & 2 gross in a Case. Catalogue of Honey Labels free.

A. O. CRAWFORD, S. Weymouth, Mass.

If you Wish to Obtain the Highest Price for Honey

**THIS SEASON,
WRITE TO HEADQUARTERS,**

F. G. STROHMMEYER & CO.,
Wholesale Honey Merchants,
122 Water St., New York.

17-4db

HERE!

25 Colonies of black bees on frames $11\frac{1}{2}$ x 16, all in good condition, and plenty of good winter stores. No foul brood in this vicinity. Price \$4.50 per colony.

PERLEY SMITH,
19d
Keck Center, Fulton Co., N. Y.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14tfd
A. H. DUFF, Creighton, O.

WANTED.—To exchange bee-keepers' supplies for alsike-clover seed, buckwheat, any kind, or a lawn-mower, new. 18tfd
BRIGHT BROS., Mazeppa, Minn.

WANTED.—To exchange choice nursery stock for land, bees, or offers. J. B. ALEXANDER, 19d
(Nurseryman), Hartford City, Ind.

WANTED.—To exchange a power printing-press, size of chase 8x12, cost \$200, also stock of type, cost \$150, for bees or honey. 3tfd
F. A. SALISBURY, Syracuse, N. Y.

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CONVENTION NOTICES.

The Darke Co. Union Bee-Keepers' Society will hold its next meeting at Arcanum, O., on Friday, Oct. 28, 1887. J. A. ROE.

The Pan-Handle Bee-Keepers' Association will hold its next meeting Oct. 26 and 27, 1887, in the K. of P. Hall, No. 1138 Main St., Wheeling, W. Va. All bee keepers are invited. Blaine, O. W. L. KINSEY, Sec.

The North-American Bee-Keepers' Society and the North-western Bee-Keepers' Society will meet in joint convention at the Commercial Hotel, corner of Lake and Dearborn Streets, Chicago, on Wednesday, Thursday and Friday, Nov. 16, 17, and 18, 1887. Arrangements have been made with the hotel, for back room, one bed, two persons \$1.75 per day, each; front room, \$2.00 per day, each person. This date occurs during the second week of the Fat-Stock Show, when excursion rates will be very low. W. Z. HUTCHINSON.

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No. 20.

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CONVENTIONS.

DR. MILLER SUGGESTS SOME THINGS TO BE ATTENDED TO BEFORE WE CONVEENE.

I BELIEVE bee-conventions are increasing in popularity. Rightly conducted, there is no reason they should not. If I am not mistaken, in Germany they have a society, if not societies, with something like 500 members. Did any society in this country ever reach 200 members? Perhaps we have something to learn from our German brethren in this regard.

For many who attend the larger conventions, the attendant expense makes it important that every thing should be planned to occupy the time in the most profitable manner, and it appears to me quite worth while to spend considerable time in advance in talking the matter over. As one of the officers of the North-American society, I am quite anxious that our next meeting should be successful; and as the same things may apply to other societies, it is well to talk out loud.

Something has been said already about having the North American a representative society, but no definite action has been taken in that direction as yet. Perhaps it would be a good idea for those who have thought most about this matter, to tell us specifically just what should be done.

Going back to general principles, a mistake is often made in appointing the time—that is, the day of the week. If members are expected from a distance, and a two-days' session is to be held, Tuesday and Wednesday are by no means as good days as Wednesday and Thursday, nor even as Thursday and Friday. If the first day is Tuesday, it is difficult for some to be there on time; and if it

closes on Friday it is also difficult for them to get home in time; but it seems better, if there must be any break in numbers, that it should be at the last end rather than at the first. Besides, if a member is present and much interested, he will perhaps make more effort to remain than he would to get there on time.

One of the bad things about most meetings that I have ever attended is the being confined so many hours in a room with perhaps little or no ventilation, the attention kept continuously fixed for three or more hours at a stretch. It is a little strange that a set of men will get together and warmly discuss the kind of ventilation that is best for bees, and forget that ventilation is just as necessary for the human family. If it is difficult to properly ventilate the room, the windows can at least be opened during a 15-minutes' recess, when the members can be moving about without danger of taking cold. Neither is this recess a waste of time. I believe more can be accomplished in 1½ hours after recess in the forenoon or afternoon than in 1½ hours without a recess. I know I am rapping my own knuckles in saying this, but that does not alter the facts.

At what time should the election of officers take place? For one, I don't know. There seem objections to electing officers for the North American before the place of next meeting is decided; because, if it should be at the extreme South or North it might not be best to elect officers from the opposite extreme who might not be at the next meeting.

It has been customary for the newly elected officers to assume control during the latter half of the convention. There may be some good reasons for this, but there are some against it. A set of offi-

cers ought to be able to make more uniform work to act continuously through the convention than to begin at the middle of one convention and stop at the middle of the next. In other words, a change of officers during a convention makes more or less of a break. Considering that I am an officer in the North American, my suggestion may not seem a very modest one; but, in spite of the immodesty, the principle looks to me correct. I am quite willing, however, to let the old custom continue during the next convention.

On one point I feel a little hesitancy about speaking, but I believe I ought. It is quite common for a number of persons to attend the sessions of the conventions and pay no membership fees. It is, in general, those from no great distance. The man who has been to the expense of coming 100 or 1000 miles, and perhaps brings more to the convention than he takes away, pays his full share of all expenses, while others who have all the benefit of the discussions, and are at little or no expense in coming or going, absorb the whole with not even a "thank you." Bee-keepers are such a liberal set that their conventions have been made even more free than political conventions. Is it right? If you will ask the secretary or treasurer at any of our large meetings, you may be surprised to find how many dead-heads are present. I don't know just what is the best thing to do about it, but I think in some way every man should pay his fee on his first arrival.

C. C. MILLER.

Marango, Ill.

Thanks, friend M. I heartily indorse every point you make; and most especially do I indorse that matter of ventilating the room we meet in. When the room is poorly ventilated I get dull and blue, and am very apt to make up my mind that I won't come next time; whereas, if I can be near an open window I often get real happy, and wonder why it is I ever stayed away from a single national convention.—On some accounts I rather like our customary way of changing officers in the middle of the meeting. We are enabled to get somewhat acquainted with new comers.—This matter of each one paying his share of expenses is a difficult thing to manage, and I presume it always will be. Even in our churches it is customary for a limited number of the members to bear the heaviest burdens, and they are often those not very well off in this world's goods either. I don't believe I would ask each person to pay his dues on arrival, for it would be quite embarrassing to the class that are not in the habit of paying at all, and perhaps might cause some of them not to "arrive." If they want to come, and don't want to pay a membership fee, I should say, let them come. As you say, bee-keepers are whole-souled as a rule, and, as a rule, clever and liberal. Now, if we make too much fuss about this sad fact, that a great many come and participate in the meeting without paying their share of the running expenses, we might get the reputation of being close-fisted. I am glad you spoke about it in print, and may be this will stir a good many up to their sense of duty. I am very glad indeed that you are one of the officers, for then we shall be sure of your presence.

A CALL ON FRIEND JONES.

W. F. CLARKÉ GIVES US SOME GOOD NEWS.

ABOUT sixteen months had passed since my last visit to Beeton, which is some 70 miles distant from Guelph. Unexpectedly called to take a journey over the line of road which runs through Beeton, I gladly availed myself of the opportunity to stop over a train, and make a brief visit. The home apiary was the only one I had time to look at. It is in much better order than when I saw it last. High fences and neat trellises conceal it from the public street. Quite close to the business part of the village, it is yet retired and secluded. At the time of my last visit, Mr. Jones was busy removing evergreens from the woods, about six miles away, and planting them for a hedge. I predicted that it would be labor lost, for I have often tried to move such evergreens, three or four feet high, from the woods, but could never make them grow. They must be dug up when quite small, and first transplanted into a sort of nursery. A considerable percentage of them will die, and then your hedge can be made with the survivors. Nurserymen who raise them from seed, or import them from Europe when very small plants, move them three or four times before they attain a height of three feet, thus getting a ball of fibrous roots which insures their growth when finally transplanted to some permanent location. My experience leads me to the conclusion that it pays in the long run to buy evergreens of nurserymen, rather than go to the woods for them.

Three pleasant surprises met me this time at Beeton. The first was to find that our friend Jones had recently taken a decided stand religiously, having joined the Presbyterian church at its last communion season. I had noticed a considerable change in him from about the time that father Langstroth attended the Toronto convention, whence he accompanied Mr. Jones to Beeton, staying over Sabbath, and preaching. Other circumstances deepened the impressions then made. A Sabbath in Scotland, where Mrs. Jones's cousin is minister to a large congregation, was not without its effect. The Lord has an infinity of wise methods whereby he leads us to himself. What cause for thankfulness, if we are led to fall in with them, so as to find the *summum bonum* (the supreme good) of life! There are some others of our leading bee-keepers concerning whom it would rejoice my heart to be able to make a similar record.

This isn't bee-keeping, but it is something that lends a new fascination to every interesting human pursuit—gives nature fresh charms, brings peace and rest to the heart, and makes life worth living.

My second surprise was in the realm of apiculture, and connected with the theory of hibernation. In the course of some experiments for the cure of foul brood by the fasting method, Mr. Jones has demonstrated that bees can live without food for a considerable space of time. Three weeks is the longest period he has proved to be safe, but he is inclined to think that bees can fast longer than that without risk. I have no doubt that, in the winter cluster, they can go for a month without eating. Of course, this does not prove the fact of hibernation, but it harmonizes with the theory most completely, and naturally suggests a species of dormancy during long fasts. It would seem a wise

adaptation of nature and providence that insects, gifted with such intense activity during the working season, should undergo a change to fit them for long spells of rest during cold weather. If that change lulls their intense activity into comfortable repose, and so quiets down all their functions that digestion becomes a very slow process, and they need a meal only now and then, we have a wonderful and beautiful example of that harmony between the various forms of animated life and their environment, of which we see so much in other departments of nature.

My third surprise was created by an invention which will shortly cause a great commotion among the dry bones and not yet extinct fossils of bee-dom; for there are those who have virtually taken the position in regard to apiculture that the new is not true, and the true is not new. Nobody can invent any thing any more in connection with bee-keeping. What will these modern mummies think or say when I tell them that friend Jones has invented an appliance practicable with all movable-frame hives, from the old Langstroth to the new Heddon, which revolutionizes the manipulation of them, and will reduce the cost of comb-honey production at least twenty-five per cent? It is applicable to both open and closed-end frames, both to the brood and section departments of a hive; dispenses with tin strips and thumb-screws, prevents frames and sections being fastened with propolis, and is, by all odds, the best invertible, convertible, and change-placeable contrivance yet devised. By its use, you can turn over a hive in a twinkling if you wish to do so, and take it all apart with equal celerity; you can manipulate brood-chambers and section-cases at will, and do it all without rough disturbance of the bees. The crowning marvel of this new invention is, that it is ridiculously cheap, costing only a few cents. It is so simple that you are ready to wonder why every practical bee-keeper did not think of it at one and the same time, and you can hardly help laughing outright at the stupidity of the whole tribe, that not one of their number ever thought of it before. I know that all this will seem ridiculously extravagant to many, who will be ready to think I am easily carried away, and soon excited. Well, I have no ax to grind, except the ax of universal apiculture, so I can afford to be pooh-poohed, and I rather enjoy the fun of tormenting prejudiced unbelievers. To all such, let me say in conclusion, "LOOK OUT FOR THE LOCOMOTIVE WHEN THE BELL RINGS."

RUBBER GLOVES AS LIFE-PRESERVERS.

It is but the discharge of a benevolent obligation to the weak and suffering sisterhood of the race, that I give publicity to the good effects resulting from the use of rubber gloves by a lady afflicted with lung trouble. A daughter of mine was visiting a sister of her husband, in Michigan; and finding that she was injuriously affected by putting her hands alternately into hot and cold water in the course of her housework, it occurred to my daughter that perhaps rubber gloves would remedy the evil; so she wrote me to know where a pair could be got, and, as you know, I sent you an order for a pair to be forwarded. A note from my daughter, herewith inclosed, narrates the sequel.

Guelph, Ont., Can., Oct. 6, 1887. W. F. CLARKE.

My Dear Father:—Mrs. Cossar writes: "Those rubber gloves are proving perfect blessings to me. The cold has gone from my throat and bronchial tubes,

and the pain and oppression from my lung; thanks to you for the prompt gift of these handsome tan-colored life-preservers." You see she has so much napkin-washing and dishwashing to do again, and the change of temperature of the water affected her lung trouble. I have an idea I should like a pair myself, if the duty would not be so much that the price would spoil the pleasure of using them.

Hamilton, Ont., Sept. 19, 1887.

ALICE.

Friend C., we are always glad to get any thing that tells us about D. A. Jones. I am sure the majority of the readers will consider one of the things you tell us the best news that can be heard of any human being. I found out, on my first acquaintance with friend J., that he was on the side of Christianity, but I didn't know, until receiving your letter, that he had united himself to any band of Christians recently. How could anybody resist the childlike pleading of good old father Langstroth? and how could any one help saying, "Give me just such a faith and religion as inspires this good old man"? Right glad, friend C., should we be to hear the same of some more of our prominent bee-men—not only that they are on the side of Christianity, but that they are duly enrolled, and pulling in the harness with the Christian brotherhood of some established church, for the Master.—In regard to this hibernation matter, we have already seen mention of it in the *Canadian Bee Journal*; and although my faith was quite strong, I confess that I am a good deal startled by these revelations. Can friend Jones tell other folks how he did it, so they may verify the experiment themselves?—Now, excuse me for saying your third surprise is too much mystifying. One of my counsels to Ernest, in stepping into the editorial harness was, "Don't let any thing go into print that tells what we or anybody else is *going to do*. Save the valuable space for recording what *has* been done, and the *modus operandi*." It is true, you didn't tell exactly what friend Jones is *going to do*; but after you have got our curiosity up to the highest pitch, you stop short without telling what it is that he has made that is so valuable.

Many thanks for the suggestion in regard to rubber gloves. Last week I went with my mother down to see the old farm, and on the way she was telling me about the severe time I had with my lungs, when I was only three years old. Doctors and everybody else said it was impossible for me to live—that is, everybody but mother. *She* clung to her boy. Well, that terrible sickness all came from falling down and getting my hands into melting snow and ice. I had not quite recovered from a former similar attack, and getting my hands in the snow very nearly cut short all future prospects of GLEANINGS, Home talks, etc. Well, may be the friends would like to know how I came to fall down in the snow when I was three years old. It was this way: A man came there to brimstone the bees, so as to get some honey, and I was so crazy on the subject of bees, even then, at the age of three years, that I ran out to the hives with the rest of the children, before anybody else knew it, and, child fashion, I fell down as

mentioned; and even of late I notice that putting my hands in very cold water soon produces an unpleasant feeling across my lungs. Will those afflicted with weak lungs please look into the matter?

UNFINISHED SECTIONS IN THE FALL.

WHAT WE SHALL DO WITH THEM.

EVERY producer of comb honey meets with two drawbacks which the producer of extracted honey escapes. There are others, but for the present I will speak of only two.

The first is the difficulty of getting the bees started at work in the sections at the beginning of the season. The second is the liability of having a great many unfinished sections on hand at its close. The first often causes considerable loss of honey that might have been saved could the bees have been induced to start work in the surplus apartment at the very beginning of the honey-flow. It often helps, too, I think, to start that mania for swarming that breaks out sometimes just at the time the bees should be doing their very best in the boxes.

The second drawback is a very serious one: The bee-keeper on a large scale is liable to have several thousand unfinished sections on hand at the close of the season. From these he must extract the honey and then go to more or less trouble to keep them from dust, mice, etc., until they are wanted the next year. I think there is no one who would not rather have a thousand finished sections in the fall than twice the number of half-finished ones to be used the next summer. Some, I know, consider such sections very valuable to start with, but I can not see it. I would much rather start with new sections and fresh foundation.

Several years ago I experimented carefully on a large scale with sections left over from the year before, containing comb in all stages, from untouched foundation to finished though empty combs. These were compared with sheets of fresh foundation. The result showed that, while the bees began first on those containing comb, they were, on an average, finished last of all. The honey stored in such sections is almost invariably poorer in appearance and quality than that made entirely new, and brings considerably less in the market. As all the advantages to be gained from the use of such sections can be had in a much better way, I think it will pay to melt up all unfinished combs—all, at least, that are not in first-class condition, and burn the sections, rather than use them again. I know this looks wasteful, but I believe it pays. The least harmful way of using them, if you think you must, is to keep them on hand, made up into cases ready to set on the hives. Then if a heavy honey-flow gets beyond the comb-building capacity of the bees you can put on these cases of empty combs and so save honey that would otherwise be lost.

Unless the honey is extracted from partly filled sections, I feel sure it would pay better to burn up sections, combs, and honey, than to give them to the bees to finish during a good honey-yield. I do not exactly know why it is, but while giving bees new combs partly built seems to stimulate them, old combs with honey in them have just the opposite effect. I recall an instance where I filled two hives with nearly finished old sections just at the

beginning of the yield from white clover, thinking they would be finished in a few days. Ten pounds of honey would have finished either lot. They did not get along very fast with it; and as I was busy I let them alone until I began to take off honey from the others. Those sections were not all completed yet, and looked scarcely better than when put in. I had given them about forty pounds of honey to start with, yet that with all they had made was not worth as much as what other colonies had made in the meantime on foundation starters.

I started out to tell the readers of GLEANINGS how to dispense with a great deal of the expense and annoyance of unfinished sections in the fall; but I have spent so much time in preparing the way that I must leave it for another article.

Dayton, Ill.

J. A. GREEN.

Friend G., this is a most important matter indeed. We have had considerable written in regard to it from time to time, but no one seems to have noticed, as carefully as you have done, just how the thing works. I am very well aware, that a trifling thing will many times cause a powerful colony of bees to lose many pounds of the very best of our honey. I have before mentioned, that a few cappings or bits of comb, placed in the upper part of the hive, during the height of the clover season, will cause them to stay at home when colonies to the right and to the left are bringing in their 8 and 10 lbs. of honey a day. I have seen a new swarm lose fully ten pounds of honey, I think, in a single day, because they were not pleased with something about their new quarters, and would not start out to the fields; and since you mention it, I remember some of my experiences with old dauby sections, just about as you relate it; and I decided at the time that it would have been better to burn up, or bury in the ground, these odd bits that I was trying to save by my mistaken economy. We shall be very glad indeed to have reports from others in regard to this important matter.

BEE-HUNTING.

HOW A NATIVE AUSTRALIAN DOES IT.

THE editor of GLEANINGS is doubtless acquainted with the *Youth's Companion*, and probably he agrees with the writer in the conviction that it is a *charming companion*.

Few papers for young people are so pure in character, so high in their aims, or contain so much of the pure gold of thought in their articles. GLEANINGS and the *Companion* make two excellent guests to entertain for a whole year, and the writer hopes that they will go together into a great many new homes this year. Sometimes the *Companion* wanders into the field of bee culture, and then its notes are always valuable. Looking over last year's bound *Companions*, in a September number the writer ran across this odd bit of bee lore. Perhaps the readers of GLEANINGS will find it as interesting as she did.

BEE-HUNTING.

The native of Australia adopts a peculiar method for discovering wild honey. He knows that bees never wander far from home, seldom more than two miles; and he also knows, that when a bee is laden with honey it makes as nearly as possible a straight line for home.

All that is necessary, then, is to find a bee that is well laden, and follow it. But that is more easily

said than done. Any boy who has tried to follow the big and gray-colored bumble-bee to its nest knows how great a task it is. But that is a mere trifle to following the sober little honey-bee, which can be lost against a gray-colored hillside.

In order to be followed, the bee must have a distinguishing mark that can be easily seen; and with such a badge the Australian provides it. He gums a small tuft of white cotton to the bee's back, and thus follows it with comparative ease.

But the question now comes up, How is the cotton to be put upon the bee's back? The gum is quickly found—it is on almost any tree; the cotton grows right at hand. The bee, too, is found in almost any sweet flower, buried head first in the dusty pollen, drinking in the nectar, and showing quite plainly whether its honey-sack is full or empty. It moves a little in its eager haste to secure the delicious liquid, but perhaps a quick dab will fasten the cotton on its back. Do not try it. As the little boy told his mother, the bee is a very "quick kicker." Watch the Australian—and he is a very stupid fellow too, in most things. He fills his mouth with water, has his snowy tuft of cotton readily gummed, finds his bee, gently drenches it with water spurted from his mouth, picks it up while it is still indignantly shaking itself free from the water which clogs its wings, and with a dextrous touch he affixes in an instant the telltale cotton. Very much out of patience, no doubt, with the sudden and unexpected rainstorm, the bee rubs off the tiny drops from its wings, tries them, and away it goes, unconsciously leading destruction to its happy home. LYDIA STRAUN.

FALL INTRODUCTION OF QUEENS.

INTRODUCING A NEW STRAIN OF BLOOD BY HAVING QUEENS FERTILIZED BY DRONES FROM A DISTANT APIARY.

FOR years it has puzzled me to introduce queens late in the fall when there was no brood of any kind, and no honey coming in so as to make a sure success of it. To be sure, I could do it by the nucleus-box plan, and succeed every time in getting the queen accepted; but after the brood is all hatched out, and the bees have become largely inactive for winter, it is a slow tedious job to get them to properly fill themselves with honey to that degree necessary to make the introduction of a queen a sure thing. Besides, the work required is so great that I have never recommended the nucleus-box plan, simply for queen introduction, except in the case of very valuable queens. For such, I still use this plan, and consider it of great value as being a sure thing with a queen I would not lose for any price, especially so during the months of May, June, July, and August. It rarely occurs that I have many queens to introduce at this season of the year (October), but this year I have been trying a plan of getting new blood infused into my apiary, not generally practiced by our bee-keepers, I believe, which is, the sending of virgin queens to selected apiaries to get them fertilized by drones in no way connected with the stock of bees I now have.

Last year I tried a few in this way with results which greatly please me. Bees from queens so mated seem to possess more vigor and much greater industry than those from home-mated queens. Well, some of the queens sent off in the latter part of August have been slow in coming back; and as our fall has been very cool and cloudy here, it would often be next to impossible to do anything with queens at the time of arrival, especially by the nucleus-box plan, on account of the cold. After thinking on the matter a little I decided on the following: Taking down a frame of empty comb from its place, I proceeded to cut a piece of wire cloth three-fourths as large as the comb. From

each of the four corners of this piece of wire cloth I cut out a piece one inch square, when I unraveled, or took out the wires on each of the sides for $\frac{1}{2}$ of an inch, so as to have the points of the wires free from cross-wires that depth, so they could be pressed in through the septum of the comb. I now turned the four sides of the wire cloth one inch deep, at right angles, so as to form a box, as it were, an inch deep and without bottom. When a queen arrived I laid the cage over a queenless colony if too cold, or near night, till I could open hives, when the cage was taken to a warm room near a window and opened. The queen was now caught and her wings clipped, when she was put in a small round wire-cloth cage and slipped into my pants pocket. I now took my large bottomless cage, opened the hive I wished to put the queen in, caught the reigning queen, caged or killed her according to my wants, and shook the bees off this frame down into the hive if too cold for them to get into the hive safely if shaken outside, otherwise they were shaken at the entrance as usual. I now took the caged queen from my pocket and let her run on to the comb where there were cells of unsealed honey, when she would at once go to eating honey from one of the cells. While thus eating I carefully placed the bottomless wire-cloth box over her, fitting it equidistant from all sides of the frame, when the points of the wires were pressed into the comb till the cross-wires touched the tops of the cells. The frame was now lowered into the hive, and the frame next the cage left a bee-space off from it, so the bees could go all about and over it, a frame being kept out of the hive for the time being, if necessary, to accomplish this. The hive was now closed and left from four days to a week, according to the weather, when it was opened, and the cage lifted off the comb. The time of the queen at this season of the year is of no value in this locality, so I prefer to leave her six or seven days, for then I find the bees all settled down for winter, with no excitement about the queen whatever. In this way I succeed every time, and no longer am anxious over fall introduction of queens. Try it, sister and brother bee-keepers.

G. M. DOOLITTLE.

Borodino, N. Y., Oct. 10, 1887.

PROF. COOK MAKES A CORRECTION.

I FIND my hands are more and more filled as the years go by, and so in my fill of duties mistakes occur. Thus, in the last GLEANINGS I describe *Hemipteron Leptoglossus* (not *Septoglossus*) *phyllolopus*, and stated that its only work was to destroy other insects; and according to all previous accounts of this enemy, such is the case. But I was misled by reading the wrong letter. I now learn from Mr. W. J. Ellison, Stateburg, South Carolina (it was he and not Mr. Swinson who sent the insects) that this bug attacks the tomatoes and not the bees. This fact makes this bug one of much interest. We have information that seems reliable, that this bug kills the Southern cabbage-bug—*Strachia histrionica*, and now even more reliable testimony that it destroys tomatoes—a sort of omnivorous bug it is. The figure in GLEANINGS is excellent as to form and proportions, but would look better if all but the white line across the middle of the body were more densely shaded, as was the drawing sent. This white line is a very marked feature. A. J. COOK.

Agricultural College, Mich., Oct. 10, 1887.

REPORT FROM O. M. BLANTON.

ONLY HALF A CROP, BUT 20,000 LBS. OF HONEY AFTER ALL.

BRO. ROOT:—Here I am, far away from home, at Mont Eagle, Grundy Co., Tenn., on the Sewanee range of the Cumberland Mountains, 2300 feet above the level of the sea.

This is a health-resort, conducted on the plan of Chautauqua, in New York, where persons can enjoy themselves in religious exercises, lectures on various scientific subjects, and the study of all branches of learning in the schools here established for the mental improvement of the visitors assembled.

The atmosphere is balmy and health-giving, with a temperature during the summer months of 65 to 85 degrees.

The top of this mountain-range is a plateau extending fifty by about five miles wide, with some of the grandest scenery the lover of nature could desire.

I here met Mr. Albert Wells, of South Pittsburg, Tenn., an old bee-keeper who has an apiary of 30 colonies three miles from this village, located on a cliff that commands the view of Battle Creek Valley, with its grand palisades, coves, and chasms. On the plateau there is a great variety of honey-plants, such as goldenrod, eupatorium (boneset), asters, and lespedeza (Japan clover); also trees and shrubs; chestnut, black locust, sourwood, and sumac. I observed in the fields, on the commons, roadsides, and every open space in the forests, lespedeza growing in the greatest luxuriance. As to its capacity to produce nectar for bees, I know nothing; but for its presence, cattle would suffer during the winter months.

The sides of the mountains and the valleys below are rich in the most valuable timber, such as poplar, basswood, black locust, walnut, oak, and hickory, with redbud, dogwood, and red haw. The usual wild flowers (perennials) abound, and are prolific in nectar, owing to the rich and damp soil with its many delightful springs.

The bowels of the earth abound in coal and iron. The railroad running along the crest of the mountain was constructed for the conveyance of coal and coke from the mines. I consider this a paradise for the bee-keeper, especially when in quest of health.

With the exception of friend Wells, all keep their bees in gums, as their forefathers did. Mr. Wells' bees are in good condition, although his yield of honey has been small, owing to ill health preventing the proper attention being given them. I shall try a few here next year, as an experiment and pleasant pastime, with the hope of stimulating the old-fashioned bee-keepers to scientific methods of handling bees.

My apiaries at home, Greenville, Miss., I farmed out to my head bee-keeper, Mr. Alfred Latta, on shares; and from what I can learn they will not yield more than half a crop—about 20,000 lbs.

The cold spring, with excessive rains in June and July, and severe drought in August and September, are the causes. I return home in a few days, as the forests are putting on the sere and yellow leaf, and the cotton harvest of the valley is demanding my attention.

O. M. BLANTON.

Mont Eagle, Tenn., Sept. 28, 1887.

OUR P. BENSON LETTER.

A OWED TO THE HUNNY BEE.

1. O inseeck brite
Whitch sails in the lite,
And never gits tite
Like sum men at nite.
2. At don of day
You fly away,
As hi as our old rooster,
Or hire than he yooster.
3. You skare the wimmen,
When you cum a skimmen
Around in the air
Evrywhair.
4. You git hunny from the flowers
At all hours,
Also from the vines
And dandelines
And things. It's sweet
And very good to eet.
5. How doth the littel bizzzy bee
Whitch we within the hive do see
Improve each shinin ower
With all its energy and power
And gather hunny all the day
And bee bred too so brite and gay
From evry openin flour
To store away in our
Noo hexagony hive.



"CUM AND SIT AWHILE WITH ME."

6. Pirty little birdling bee
Cum and sit awhile with me
Beneath the shadow of this tree
While I do raise my fec-
Ble vois to sing a pome
In praises of thy home.
7. But pleas doant sit too near to me
Beneath the shadow of this tree,
For while thy praises I do sing
I fear the sharp point of your sting.
8. O thing of buty brite and neet,
How I do fondly lov to eet
Yure bred and butter and hunny,
For then you git the wurth of your munny
9. Fond insex now adoo!
Go sale aloft in the u-
Niverse of bloo,
O do. Adoo!

The abuv pome was komposed and rit by P. Benson A. B. S. Me and Watts made the 5th verce.

HOW TO PREPARE A NUCLEUS FOR WINTER.

QUESTIONS FROM AN A B C SCHOLAR.

PERMIT me to write a friendly letter, and close with a few questions. Before getting the three-frame nucleus and select tested queen you sent, I had two colonies of bees. I did not attempt to work with them without veil, gloves, and smoker. I blamed the trouble on my nervousness from office work. I am a telegraph operator. When I went to open your nucleus I bundled up as usual, expecting a bee-flight, but began by using only enough smoke to drive the bees down on their combs, so they would not get lost. I took out one frame; a few bees began flying, but I missed that wicked buzz that I was so used to. The flying bees would alight on me, but not one attempted to sting through my clothes. No wicked buzz. I put the three frames in the hive, then shook in the loose bees from the nucleus-box, but still no attempt to sting. To say I was surprised would be to put it mildly. Was it possible I had a queen that would raise bees that a nervous man like me could handle with pleasure? I tried them without veil, smoke, or gloves. From August 23d until now, Sept. 16th, I have handled them with only one sting, and I think that came from another hive. They crawl over my hands, alight on me, and fly away. Sometimes I have taken out every frame twice in one day, and no stings. I purposely go to this hive without any protection whatever, to get confidence in myself, and to test their gentleness. I am feeding them every night (except Sunday), and still they do not seem to be cross. If they are this way when the colony gets populous and crowded, I shall be pleased. Perhaps their gentleness is owing to their babyhood, as they are mostly young bees. I do not want to strengthen this nucleus from my other hives if I can avoid it. If these bees are gentle, I want to know it and keep them so by not putting in brood from colonies not so gentle. This brings us to question first.

1. Will your three-frame nucleus, received and put in a hive August 23d, be strong enough to winter without strengthening from other stocks, if I give the queen plenty of room and give them plenty of stores, and feed some every night that is warm enough? When necessary, I give them frames partly filled with honey from other hives, but no brood.

2. Will these bees be likely to continue so gentle when the colony gets populous, and the bees are old?

3. I understand from the A B C that the space between the bottom and frames, the sides and frames, the ends and frames, and between the frames, should be $\frac{3}{8}$ of an inch. I have a stick that thickness so as to be accurate and rapid in spacing. GLEANINGS, Sept. 1, says the space between the frames should be $\frac{1}{2}$ an inch. Can you make this plain? I want it right.

4. What distance apart should the frames be placed when colonies are packed for wintering outdoors, in the same place they stood in the summer?

5. In packing for winter, must we give them frames solid with honey, or must they have some empty cells where the brood generally is—the frames, say, two-thirds full of honey?

6. Do you oil your brood-frames before using in the hives?

PHILO S. DILWORTH.

Pittsburgh, Pa., Sept. 16, 1887.

1. The three-frame nucleus, cared for as you describe at the date mentioned, would be amply strong to winter, if the queen is prolific, and keeps the frames filled with brood. 2. Italians, as a rule, are always gentle; and the bees you have are nothing more nor less than a fair sample of the bees from Italy. As a general thing, a weak colony is much easier to handle than when it becomes stronger; but with mild and careful treatment you will find but little difference in the dispositions of the Italians, whether weak or strong. 3. Three-eighths of an inch should be the space between the bottom-bar of the frame and the bottom of the hive, and also between the end-bar of the hive and the side of the hive. One-half inch is the correct distance for spacing the frames. 4. When preparing for winter, however, it is customary to space a little further apart. 5. During early fall you can give them frames solid with honey, and the clusters will gradually consume the honey in the cells in the upper central portion of the frames, making what is called a "winter nest." 6. We don't oil our brood-frames. Oiling is sometimes recommended to prevent the bees from propolizing the end-bars in closed-end frames, but it is not necessary in suspended frames such as you have.

HONEY-MARKETS.

THE DANGER OF INCORRECT QUOTATIONS.

I AM decidedly in favor of the publication of market reports. I am satisfied, however, that sometimes harm is done by them. I think they are often incorrect—I know they have been sometimes. At one time I took the pains to go to about every house where honey was wholesaled in Chicago, and I could not buy honey within several cents of the price quoted in the bee-papers and dailies. I went to the office of the leading daily which gave honey quotations, and asked why they did not give correct reports. They said they published what was given them. I showed them the statement of sales of my own honey by a commission house, and they said it was a revelation to them, as they had had no opportunity of looking behind the scenes prior to this, and immediately the quotations were changed a few cents higher. With no thought of doing any great harm by it, the commission men sometimes report a lower figure than they are selling at, so that, when they make returns to their customers, the customers will be well satisfied when they see they are getting more than the market price according to the printed quotations. But as these printed quotations are often used as a help in fixing prices elsewhere, any other than a correct report may be mischievous.

Even if correct reports are given, an incorrect use of them is often made. Mr. Jones lives at such a distance from the nearest city market, that, after paying freight and commission, he receives net about 3 cents less than the price at which the honey is sold; so, if the price at the city market is 12 cts. per pound, he receives 9 cts. net, and will do

better to sell at home for 9 cents. Taking this view of it, he settles upon the plan of fixing his price in all cases 3 cts. below the city price. This may be all right, and it may be all wrong. If his crop of honey, together with that of his neighbors, is so large that some of it must be shipped to distant markets, his plan may be all right. But suppose the crop is short, and Mr. Jones follows the same rule, selling at 9 cts. because the city price is 12. The grocers sell out all of his honey, which he has sold to them at 9 cts., and then buy from the city, paying 12 cts., and freight for it. If Mr. Jones had none they would pay 12 cts. and freight, say 13 cts., for all. Now, is there any reason why in this case he should not sell for 13 instead of 9 cts.? The same rule holds in other things. Years ago, the farmers about Marengo shipped their grain to Chicago, and I could buy corn from them at less than the Chicago price; but of late, dairying is so extensive that more corn is consumed than raised, and I have to pay more than the Chicago price. So the prices for honey should be higher or lower than city prices, according to circumstances.

FULL COMBS TO CLUSTER ON.

In the summer of 1886 I put some unoccupied brood-combs on a hive, to be taken care of. Some of them were empty, and some of them were partly filled with honey. I put five supers on the hive, making the whole affair six stories high, containing, in all, 60 brood frames. By the time the harvest was over, all were pretty well filled, and I left them till about time to put in the cellar. When I attempted to take off the upper super I found bees clustered in it, and concluded the brood-nest was there. Looking at the entrance I was surprised to see bees coming out, although it was too cold for bees to fly. Did the brood-nest extend from top to bottom, or was the colony separated into two clusters? I took off the upper two supers, then the next two, which I found solid with honey, having but few bees. These few bees I brushed out, and replaced the upper two supers, leaving the pile four stories high, giving the bees an opportunity to get together in one compact cluster. They were left thus till Dec. 10 (my bees were taken in the cellar about Nov. 17), there having been in the meantime some zero weather. Dec. 10 I concluded I would put in the cellar whichever story contained the cluster. To my surprise I found the bees still in all four stories; and taking out frame by frame I succeeded in getting the bees into two stories, which I put in the cellar. The combs I took out were filled with honey, and, as nearly as I could make out, the bees had originally distributed themselves throughout the six stories, clustering only where there were empty cells. The question arises, Are combs filled solid with honey good for bees to cluster on? I have always supposed so, but in this case the bees spread through six stories rather than cluster on filled combs. This also makes me think that very large results might be obtained by piling up several stories of empty combs on a strong colony at the beginning of the harvest, and leaving them till its close. This colony was one too weak to work on sections, but I thought they could keep the worms out of these empty and partly filled combs. I can not tell how much honey they stored, but I think at least half the combs must have been filled by them.

C. C. MILLER.

Marengo, Ill.

Your experiment of the six-story hive is

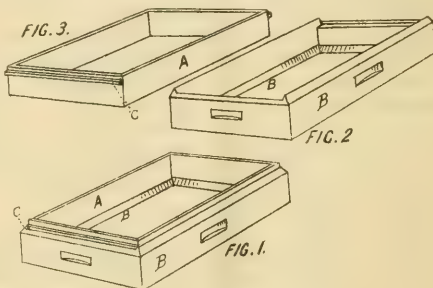
very interesting to me. You may remember I have mentioned working an apiary in that way when we were too busy to extract or do any thing else; and it has always seemed to me that the bees work harder to fill all those stories than they ever did before under any other circumstances. I watched anxiously to have you tell us whether the bees wintered well or not. Had you crowded them into two stories, say in October, I am inclined to think they would have consumed enough honey from some of the natural combs to have given them an excellent brood-nest for winter. And now I want to inquire if you did not find that honey in those five supers very superior in quality. It seems to me I have never seen any honey equal to that which we stored away in frames for table use that season. Many of the honey-combs had been on the hive from July till October.

A T-SUPER SHELL.

FRIEND JENNINGS' PLAN OF MAKING ONE.

In my letter, published in GLEANINGS for Aug. 15th, you make me say, "I had a little trouble to get my bees into the supers." It should read, "I had no trouble," etc.

When taking off supers I find it quite a bother to have to first take off one or two hive-bodies before I can get at the supers. Now, to obviate this I have made shallow frames, or shells.



JENNINGS' T-SUPER SHELL.

These shells are made exactly like a Simplicity body (Fig. 2), beveled edges, rabbets (no tin rabbets) and all, but are made only the depth of the supers. On the ends of the supers, outside, is screwed a cleat, $\frac{3}{8} \times \frac{1}{2}$, shown at C, Fig. 3, and as long as the super is wide. This is screwed on about $\frac{3}{8}$ from the top, and should fit snugly in the rabbet when placed in the shell, as shown in Fig. 1. This allows the super, at the same time, to sit firmly on the honey-board, and the shell to come well in its place on the shoulder of the hive. The cleats also serve as handles, when used without the outside, and keep the super in the center, between the ends of the shell. When you wish to remove supers from your hive, all you need to do is to take the shell by the handles, and off comes the shell, super, and all, at the same time; or you can take off two or three with one lifting, if you happen to be strong enough. There is another advantage. You will notice in the Simplicity hive that the honey-board projects $\frac{3}{8}$ of an inch above the shoulder. This causes the super to project a corresponding distance above the shell;

and as the two are the same depth, there is a similar projection of the shell below the bottom of the super. The advantage of this is, that when you take off a super filled with bees, and bees crawling all over the bottom, you can set it down without killing a bee, as it rests on the edge of the shell, where the bees have no chance to get.

Fig. 1 is the two combined; Fig. 2 is the shell, and Fig. 3 the super. In Fig. 1, A is the super, B the outside, and C is the cleat. The letters correspond in all the figures.

So far as I know, this is original with me, having never seen or heard of any thing like it before. If you do not believe there is comfort in using it, just try it, and you will find it much better than using hive-bodies to put over your supers.

THEODORE JENNINGS.

Rye, Westchester Co., N. Y., Aug. 23, 1887.

THE MANUFACTURE OF COMB-FOUNDATION MILLS.

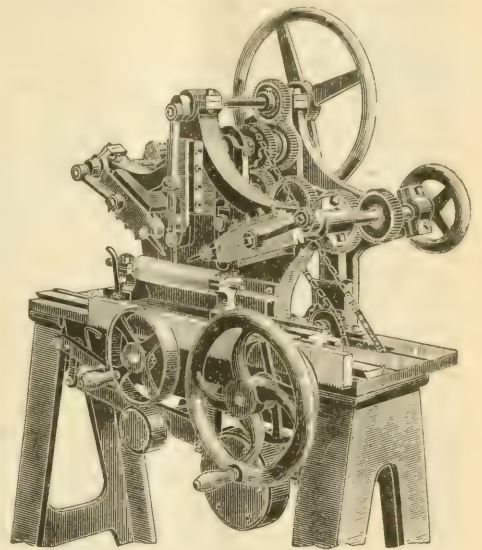
SOME EXPLANATIONS IN REGARD TO THE MANNER IN WHICH IT IS DONE.

ALTHOUGH there have been, from time to time, statements and suggestions made, to the effect that a bee-keeper will secure as much honey without the use of comb foundation as he will with it, the fact remains, nevertheless, that the use of the article by bee-keepers seems to be steadily on the increase. Occasionally a poor season for honey results in the demand being smaller than it was the season before; but I believe that, as a rule, the consumption of the article is steadily increasing. In 1886 we manufactured and sold 190 mills for making foundation. During the past season of 1887, which, however, is not quite done with yet (for the reason that we send comb-foundation mills to almost every part of the world), we made and sold about 200, averaging, probably, \$20.00, making a sum total of \$4000.

Now, although we have for some years been in hopes of producing as good machinery as the world affords for making these mills, we have, during the past three months, been making a still better machine than any thing we have used heretofore; and the engraving above is an accurate picture of the machine now in use for the manufacture of the rolls we are sending out at present.

The first operation in making these rolls is to cast the metal on accurately turned steel shafts. A few years ago we used to do the embossing entirely by the use of silver punches, raising the metal by repeated strokes so as to form the cells and cell-walls. Where mills are made by punching, however, a comparatively soft metal must be used; but by the late process of cutting out chips so as to form the cells, we may use a composition of copper, tin, and zinc, nearly as hard as brass or copper. The advantage of these hard rolls is, that they are not injured by the passage through them of any comparatively hard substance, such as wooden toothpicks used in cleaning the starch, etc., from the surface of the rolls. The machine here shown is designed to cut out

the chips from the hard metal, as mentioned before.



MACHINE FOR PRODUCING THE EMBOSSEING AND ENGRAVING ON THE ROLLS OF FOUNDATION-MILLS.

In the machine above, a roll is shown suspended by its bearings, in the fore part of the machine. Right above it are two delicate tempered steel chisels, or gravers, ready to cut out the chips of metal. These gravers are set in slides, and the slides are operated by a crank and pitman, as the reader will notice. One of the keen chisels first goes down and makes a cut in the surface of the roll. This first cut raises the edge of the chip, but it does not take it out. The finishing is done with the other chisel, which, as it comes down to its place, cuts the chip entirely loose, and throws it out. The third slide, operated by a similar pitman, is seen standing very near, between the two chisels mentioned. This slide carries a steel punch which strikes a blow with sufficient power to make the walls of the cells. The various cog-wheels, levers, chains, balance-wheels, etc., are solely for the purpose of operating the two chisels and this punch. The machine is also so arranged that every part is adjustable. For instance, we can make larger rolls than the usual size, when some of the bee-keeping friends happen to take a notion to call for them, or we can make rolls with drone-cells instead of worker, or cells of other dimensions, if needed. I believe, however, that most bee-keepers have decided there is little use for a foundation-mill made differently from our regular style, giving about 25 cells to each square inch of foundation. A great amount of money has been wasted in experimenting on cells a little larger or a little smaller; also on a different height and shape of cell walls. Most bee-keepers have now settled down to pretty much one thing. Where very great height is advisable in the walls, they should be, especially for brood-combs, comparatively thick, and of soft

wax, while the bases of the cells should be as thin as the natural bases, if we can so get them; and with our new mills I think we accomplish more than has ever been accomplished before. In making very light foundation for surplus-boxes, of course we want a little wall, or base either, as may be, to a certain limit; and the samples of our work that we are sending out now are equal to any thing produced. Foundation made from very thin wax, with no walls at all, or very slight walls, is accepted by the bees, it is true; but there seems to be a marked preference for a clearly defined raised edge of wax where the wall should be started. A very poor, imperfect mill will emboss plain sheets of wax, or, rather, make indentations in it, so that the bees will work it out into comb; but a good article of foundation is cheaper in the end than a poor or hastily made article, as I believe most of the friends will agree.

With the above machine, and other appliances to match, we intend to give the world better work than we have ever done during any season heretofore. We are enabled to accomplish a great many things on account of the large number of mills we are constantly sending off, that could not be done were we working on a small scale; and we are constantly getting reports in regard to how well our product answers, from different parts of the world.

THE PRESSED FOUNDATION VS. THE ROLLED.

FRIEND DADANT GIVES US HIS EXPERIENCE AND OPINION IN THE MATTER.

WE come, perhaps a little late, to give our views on the Given or other pressed foundation. Let us first thank friend Heddon for his eulogium. It is more than we deserve, for there are plenty of others just as prompt and anxious to give satisfaction to their customers. In fact, Mr. Root sets a good example for all to follow. As Mr. Heddon intimates, each man has a specialty, and each one excels in something.

When Given made his first press he sent us samples, as he did to many others. We at once wrote him, saying that his samples were not satisfactory, being very uneven and badly printed. He answered, acknowledging that his foundation was far from being what it ought to be, but stated that he was constantly seeking to improve it, and that, as soon as he could make the desired improvements in his machines, we should hear from him. But the fact is, that it was impossible for any one to make a press that would give entire satisfaction, because it could not laminate the foundation, and would always make imperfect sheets, leaving too much wax in some parts of the sheets, and require too much pressure to print any part thoroughly.

We soon found out that those who were making pressed foundation could not compete with the others, their work being, of necessity, very irregular. In addition to this, the constructions of the bees can best be imitated by the roller-mills, since they print thoroughly all the cells. The result was, that one man after another discarded the press, and it is

now used, with only a few exceptions, solely by apiarists who make none but their own foundation.

The only advantage that can be claimed for the Given press is that stated by friend Heddon—speed and ease of operation. And yet we are strongly of opinion that, if a roller mill were furnished that made as rudimentary a wall as the Given press did, it would be of as easy manipulation as the press. We have withheld the public expression of our opinion on the Given press formerly, for fear of damaging the business of the manufacturers; but as this implement has not been offered for sale for some time past, we suppose that no one will be damaged by our statements. We are positively of opinion that no press, however carefully made, will ever succeed in competing with good roller mills. Like friend Heddon, we had thought at one time that the manufacture of comb foundation would be a part of the business of bee-keeping; but each season has convinced us more and more that it was taking the shape of a special industry.

The crop of honey is next to nothing, and we have only a few barrels of it to spare. Our clover honey is nearly all sold already. C. P. DADANT.

Hamilton, Ill., Oct. 1, 1887.

I am very glad to find, friend D., that your experience so nearly coincides with our own. No doubt the work done by the Given press answered nicely with the bees; but somehow it didn't have the nice finished look that almost any manufacturer would wish to have his goods present when sent out; and our experience was, that it was very frail to handle. Notwithstanding the speed and ease of operation in making it, as you give it, no dealer in supplies, that I know of, ever offered very long the Given foundation for sale. Another point you didn't mention is, that the Given foundation can be made right inside of the wired frames. At one time we thought that there was going to be a great demand.

Now, I have something to say on the other side of the question. It has been remarked, you know, that there are always more or less exceptions laid down in bee culture. When friend Young, from Norway, was here we had very many pleasant chats in regard to the supply-business, and among other questions I asked him about foundation. He replied, that, although they had a mill, they got along very much better with the Given press; and he finally made the astounding statement that one of the girls that helped him with the bees made all the foundation they used during the season of 1886, besides all their sales. In fact, he said she made over 10,000 lbs. during one season; and she did it all alone, unaided, with the exception of a little trimming done by his daughter; and this young woman did this, too, with the Given press. She dipped the wax and pressed the sheets. One great point in favor of the Given press, he said, is the fact that, if the sheets were dipped the right size to go into the frames, they could be put through the press and still remain the right size. The frame he uses is about 8 x 14 inches inside, and they make nice foundation that is accepted by the bees and worked out beautifully, and so thin as to get 10 sheets of the above size from a pound of wax. I suggested that they could

not have had very much walls. Friend Y. admitted they didn't; but he said they had enough so they answered every purpose. What strange things do come up in bee culture! It only illustrates what I said a good while ago, that when people take a notion to a particular machine, plan, or process, they in time become so expert in their own way that they will produce astonishing results, where people generally would not get along at all. He agrees with the statement made by friend Heddon, that, when the press got to working nicely, from ten to twenty sheets could be put through without any lubrication whatever. I can not quite understand now why friend Heddon abandoned the press after he had become so expert in making it work. Will friend I. R. Good and others who were strongly in favor of the press some time ago please tell us if they still hold to it?

Perhaps I should mention that the name of the young lady who made over five tons of foundation herself, in one season, is Jacobina Ericsson. He says in their own country they call her "Yacob," for short, spelling it Jacob, our J being their Y. I might mention that she is taller than our portly friend Young himself, and he is certainly more than six feet high. Whatever Norway succeeds in doing in bee culture, we shall have to admit that she "takes the cake" in producing stalwart men and women. Bee culture is making great progress there. Some quite large apiaries have succeeded in producing over 100 lbs. of extracted honey per colony, and this honey retails at 25 cents per lb. I wonder if it would not be a good idea for a lot of us to emigrate to Norway.

BEE-HUNTING, CHAPTER TWO.

HOW TO USE THE HUNTING-BOX ILLUSTRATED ON
PAGE 737, LAST ISSUE.

AS soon as the bees get to working well it is best to move along the line; and until you have more bees at work than are needed, it is advisable to carry a few. It is seldom a good plan to carry less than three or more than ten or twelve. Get the bees at work on the lower comb in No. 2; close the cover; jar the box enough to make the bees rise; push the slide shut, and you have them so that they can not get daubed with honey. Make your second stand as nearly on the line as possible. Pull out the slide so that the bees can get to the feed. Put one of the extra combs beside the box, and stick near it a scented feather. In a couple of minutes, uncover the window in the cover; and when the bees rise, let out one at a time. Note the direction in which it disappears, but don't place much dependence in the first lines.

Good judgment must be used in moving. When the bees work well, and we are a good distance from the tree in an open country, it pays to move half a mile at a time; but in thick woods I seldom move a stand more than forty or sixty rods. Should it be necessary to leave a stand a day or two it is best to leave a good supply of feed. Still, if none is left, bees can usually be called by the use of scent. When leaving stands, it is best to cover

them with bark, and to place them out of sight of any passer-by.

We should move as often as practicable, and directly on the line of flight if possible. While running through the woods I have often been obliged to run a very crooked "bee-line," as the bees often vary their flight to avoid obstacles in their way. Bees often, in going from the stand to the same tree, will fly far apart, some on one side of a clump of trees, and some on the other. This may occur anywhere on the line, but more especially near the tree. Also when a line runs from a field into heavy woods nearly parallel with the edge of the timber, the bees, instead of flying directly on the line, will pass down the edge of the clearing for several rods, and then make a short turn into the woods.

It is a waste of time to look for the bee-tree, or to make cross-lines, until you get beyond the tree. When the bees fly back on the line, you may rest assured that you are beyond the tree. Move your last two stands closer together (lining the bees carefully), so that they are only ten or fifteen rods apart. Now, as you have bees flying from two directions into the tree you will probably discover where they are immediately. But if you fail to find them easily, take a stand off to one side, eight or ten rods, and cross-line. This is the only place that I find a cross-line of any advantage. Usually, when you get to the right place, you can see the entrance and bees plainly. Score the body of the tree and the end of broken limbs carefully. A good spy-glass is a great help in looking into the tops of high trees. Quite often they will fly five or six rods off to one side of the tree, and then make a square turn, in order to get to the entrance. But sometimes the bees don't go up, in which case the tree is generally hard to find. I have found them in fallen timber. We should hardly expect to find a bee-tree on the ground, hence it causes a diligent search to find it. Having found the tree, it is best to mark it by cutting our initials on the bark. Then we have a legal claim upon the bees and honey. In this section of the country, not one bee-tree in a hundred is valuable for lumber. But should it be a valuable tree we are under moral and legal obligations to see the owner and get his permission to cut it, unless we climb the tree and take out the honey and bees, as explained in the A B C book. I prefer to fall the tree on to a small tree, so as to ease its fall. I have helped fall many bee-trees, and I remember of only one which resulted disastrously to the bees or combs. In that instance they were in a dead limb.

When it is intended to save the bees (as I always do) I should cut the tree immediately, and transfer the brood comb into frames. I prefer to cut bee-trees in the day time, as the flying bees are then out. Get the frames of brood, and as many of the bees as possible, into the transferring-box. If it is cold, be careful to keep the brood covered with bees that it may not get chilled. Search for the queen. She may be found on the brood-combs; but often she hides in some corner of the cavity. For dipping the bees into the box, I use a large spoon—one with a handle a foot long. After the honey is removed, place the box near the cavity, with the entrance open, and leave it there until dark. The flying bees will find the brood, and cluster in the box and on the outside. Bees can be taken from the woods late in the fall, and, by giving them combs and honey, be wintered successful-

ly. In conclusion, let me say: Never have more than three stands at a time. Don't let your hunting-box or combs get scented, for at times scent should not be used. When running bees near an apiary, its use would be a disadvantage. Never quarrel over bee-trees, for—

Oh! above all things on this side the sod,
Have peace with thy neighbor and peace with thy God.

WILLIAM E. GOULD.

Fremont, Mich., July 15, 1887.

Friend G., we are exceedingly obliged to you for the suggestions you have given in regard to bee-hunting that have not appeared before in print—at least, to my knowledge; and while it may be true that it is in only a few localities that it will pay in dollars and cents to hunt bees, it certainly pays in the additional knowledge we gain in regard to the instincts of this wonderful insect. There are a great many facts in regard to the habits of bees that we should never have discovered had it not been for bee-hunting; and this thing alone will always make it intensely attractive to me. While I write, the sun is pouring in upon us on this beautiful October morning, giving promise of a delightful Indian-summer day. And what bee-keeper's heart would not bound at the thought of a day of bee-hunting during this season of the year? If some friend can go along who loves God and his works, and is well versed in natural history, what an additional charm it lends! Bee-hunters are generally a wild, free sort of people, and when off in the woods they are almost always ready to gather nuts, catch fish, or take hold of any thing the fields and woods offer, no matter if they do start out expressly to hunt bees. Neighbor H. informed us yesterday that, on one of his farms mushrooms were so plentiful that he gathered a tubful in just a little while. I wonder if the readers of GLEANINGS are familiar with mushrooms, and know what a gift from God they are. If not, I will try to tell you something about it at another time.—Friend G., especially do we thank you for the sentiment at the close of your article, expressed in poetry.

THE WASHBURN ENGINE.

AN ENGINE ESPECIALLY ADAPTED FOR BEE-HIVE MAKERS.

THE Washburn Engine Co. is manufacturing an engine here in Medina which is not only able to run at ordinary speeds, but has even attained the rate of 3000 revolutions per minute. This engine was invented about three years ago. Its construction is such that it will not rack nor wear out, even at this high speed, like the common piston engine. In principle it is rotary, but is so constructed as to do away with many of the defects which hitherto have characterized the rotary engine. Space forbids our going into details of construction, to show how these defects have been overcome. It is enough to say, that, while we at first may have shared the common distrust of a rotary, after having watched it here in Medina for two years and a half in its practical working harness, and having recently subjected it to

a thorough test in our own factory, we can say that we have found the engine in actual practice to be all that is claimed for it in theory, and eminently satisfactory.

In consequence of the increased subscription-list of our journal (nearly 8000), we have been obliged to run over-hours. Hitherto we have been under the necessity of running our large engine, 90 horse-power, and all the line shafting, some 400 feet, simply to run the press in the main building. This certainly was not economy. Accordingly, we recently bought a 4-horse-power Washburn rotary engine. It was set up in the press-room, about 100 feet from the large boiler which supplies it with steam. When we negotiated for it we did not design to have it run any thing more than our large cylinder press. The first day's running, however, showed that it had an easy task; and the press, though requiring a considerable amount of power, kept up the same speed that it did when run by our large engine. We then put on our paper-cutter and small job press, with no apparent flagging in motion.

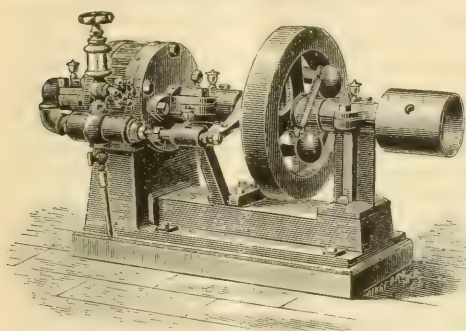
Recently, in the presence of the secretary and superintendent of the company, we gave it a further test. After putting on the two presses and the paper-cutter, we hitched on 100 feet of line shafting. The little engine didn't even then seem to feel the load; and one merely observing it would not be able to detect that it was running more machinery, except as he saw the governor-valve open wider. We then put on two engine-lathes, each cutting quite large chips of iron, and still no diminution of speed; then our deep well-pump, a large emery wheel for grinding planer-knives, and last of all, a buzz-saw, were thrown on. All the machines were doing work, and yet it seemed as if we should never reach the capacity of the engine. Just as we were putting on another buzz-saw the belt flew off from the drive-wheel of the little giant—the latter abundantly proving that it could do all we required of it.

During the time that these machines were put on, the steam-gauge showed 60 lbs.—a fair average pressure. Recently, while making some repairs in the machine-shop, we ran 100 feet of line shafting along with the necessary counter-shafts—in fact, the whole machine-shop—with this little rotary, while it was running the large and the small press at the same time.

In shutting down our saw-room at the completion of the day's work we have, as a rule, about 60 lbs. of steam left in the large boiler. Formerly this pressure was left in the boiler—a power, as you might say, confined only by iron bars and iron sheeting. Since the purchase of the little engine we have utilized this pressure. We find, after several careful tests, that this 60 lbs. of steam in our 60-horse-power boiler at a distance of 100 ft. from the engine will run the engine, with press attached, an hour and three-quarters, without additional firing of the boiler-furnace.

We regard these tests, not to speak of others which we have seen in the Washburn shops and elsewhere, as conclusive evidence

of the practicability of the engine. You will notice in the cut given, that the construction is very simple. It has neither piston-rod, crank, cross-head, eccentric-shaft, nor slide-valve. In a common piston engine there is a considerable amount of metal that must be kept traveling back and forth. The inertia resulting therefrom is considerable, and no little pressure of steam is required to overcome it. In the Washburn engine this reversal of motion is dispensed with, the power being applied directly and continuously to the shaft, without crank or other means of transmitting motion. If it is to run a buzz-saw, all that is necessary is to speed the engine up and put the saw upon the engine-shaft, or a shaft coupled direct to the engine-shaft, thus doing away with the necessity of putting up counter-shafting, extra belting, etc., to get requisite speed. An indifferent observer hardly realizes the loss of power on counter-shafting and belting; but there is a considerable amount wasted in just this way, simply because it is impossible to speed up a piston engine without racking it to pieces; but with the Washburn engine, as we remarked, all this is unnecessary.



THE WASHBURN ROTARY ENGINE.

We propose to use the smaller powers of this engine on a saw-table—mandrel-shaft and engine-shaft to be continuous; that is, we propose to have sufficient power and speed applied direct to the saw-table mandrel, without the intervention of a single belt or counter-shaft. The whole thing we shall sell at a much lower figure than our former engine and saw-table could be sold for. The engine is found to work admirably for various farm purposes, such as grinding, feed-cutting, pumping, etc.

It has also made a wonderful record as a boat-engine during the past season. It excels in speed the reciprocating engines. The wheel is placed directly on the engine-shaft. The engine sits low down in the boat, is light, can be reversed instantly, has no dead-centers or eccentrics, is economical of steam, and, in fact, the testimony of those who have used it is to the effect that the boat-engine is complete and thoroughly satisfactory.

In consequence of this little rotary being able to reach a speed of from 1000 to 3000 revolutions per minute, besides being especially well adapted for buzz-saws, it is equally well adapted for running the dy-

namo-electro machines. Not long since it was our pleasure, while in the shops of the Washburn Engine Company, to see one of these little rotaries running a dynamo, the end of the engine-shaft being coupled direct, without the intervention of any belting. It demonstrated perfectly, even in broad daylight, that it could make the two points of the carbon dazzle the eyes. We believe there is no other engine—in fact, we are sure there is no piston engine—with which it is possible to run a dynamo without belting from a larger to a smaller pulley. The Washburn rotary not only saves space, but saves loss of power from belting, as mentioned at the beginning of this article.

There is one thing more which we should have mentioned: These engines are sold for less than the ordinary piston engine. Particulars can be learned of the Washburn Engine Co., Medina, O.

ONE OF "LES MISERABLES."

RAIN, RAIN, RAIN, AND LITTLE HONEY.

WELL, friend Root, as everybody, almost, is telling you about this disastrous season, I, too, feel like joining the great throng of "les miserables," and repeating the sad refrain. In the West, the doleful tune is pitched on one key—drought, drought. Our refrain in this part of the world is rain, rain, rain. This rain, this never-ending rain, commenced away back in early spring, and has kept it up with occasional breathing-spells, as it were, of two, three, or four days occasional sunshine. There was a little gush of honey in fruit and locust bloom, between unfavorable days, which strong colonies rushed out and harvested, making rapid headway in filling up; but the weak ones could only putter along, making a slight gain. The white clover bloomed in June, and a few favorable days scattered here and there along the season gave strong colonies a chance, and they rushed the crop into their storehouse. But the earth and atmosphere have been kept so saturated that much of the time when bees could be at work there was no honey secreted in the flowers.

With the latter part of June came the intense heat, with no abatement of rain, but a sweltering atmosphere that almost parboiled every thing. Heavy thunder-showers, sunshine and rain, rain and sunshine, continued through the months of July and August. The mercury kept in the nineties the greater part of this time, with occasional jumps over a hundred. The theory that an electric atmosphere promotes the secretion of nectar failed this season. The bees covered their hives during this hot wet weather, having nothing to do. Occasionally a day or part of a day would start the nectar, when the bees would sally out. In short, you of the West were scourged with drought, while we of the Atlantic States were drowned out with rain, both extremes proving equally disastrous to the honey crop. About one-tenth of a crop will measure our season's product in all this section of country, and a few strong colonies that were prevented from swarming made about all of this surplus. The mediums, and the old colonies which cast swarms, made little if any more than a living,

and a good deal of feeding will have to be done for winter.

Every neighborhood appears to demand a management peculiar to itself; and the conflict among bee-masters appears to grow out of this law of contraries among bees. It appears to be conceded generally, that uniting weak colonies in the spring only aggravates matters. The strengthened colonies, being aroused to renewed vigor, exhaust themselves in vain efforts to forage for the young brood that is at once started, the warmth of increased numbers contributing to stimulate the queen. These old bees are exhausted by fruitless efforts, and perish rapidly. Unite early and feed heavy, keeping the hives packed close and warm. A good store of food places the doubled-up colonies on an equal footing with those which have maintained their strength through the winter. Other methods may prove better in other neighborhoods; but in this, weak spring colonies manage to make only a living, and grow to be fair colonies by fall, giving no surplus generally. Dr. Morrison is but eight miles distant from us, and he reported a few days in July the heaviest honey-flow he ever saw. There was a fair yield here at the time, but nothing unusual; and the previous week, when the doctor's bees were starving, mine were living on the fields comfortably. In one thing, however, there is almost a universal agreement: This has been the poorest honey season throughout the U. S. in many years.

E. E. EWING.

Rising Sun, Md., Sept. 26, 1887.

Now, friend E., if it was too wet with you and too dry with us, there probably was a spot somewhere between us—a sort of golden mean, as it were—where it was just right, and everybody should have lots of honey. I can not think the extreme heat was unfavorable for the secretion of honey where it was neither too wet nor too dry. Can we not have a report from somebody living in this happy locality?

MORE ABOUT THE BEES OF INDIA.

A BEE-MAN'S BEAR AND TIGER HUNT IN THE JUNGLE.

MR. ROOT:—I made the smallest crop of honey this season I ever did before. Had I not adopted friend Hutchinson's plan of hiving swarms on frames with starters, and forcing bees in the surplus apartment, I should have made hardly any thing. Most of my crop is from swarms managed in this way; but now comes the rub: The frames are built solid with brood, with very little honey in them—not nearly enough to winter on. Would it be feasible to take two or three frames of brood from each hive, give them frames with foundation, and feed heavy? Would they build comb, fill and cap over this late in season? I shall be greatly obliged for any suggestion.

I inclose a letter from a friend out in India, who is very much interested in our little pcts. Put it in *CLEANINGS* if you think it worth it.

R. R. CUYLER.

Rapidan Sta., Culpeper Co., Va., Sept. 14, 1887.

Friend C., I don't believe I would take away brood from your colonies. This brood will be soon hatching out; and if the bees are fed they will find a place to put the stores. I have heard about too much brood

in September, for safe wintering; but I am sure I never saw a hive in all my experience where I would recommend brood to be taken away. If the colonies are very populous, may be they can spare some of the brood without detriment. In your locality I think they could build comb and cap it over without a bit of trouble ensuing, at the date mentioned. Below is the friend's letter:

Dear Cuyler:—It is a long time since I wrote you, so here goes. I have been a long time in this part of India now, shooting, and sport has been very poor indeed. I had one shot at a tiger, which I hit but never got; and besides that, I have bagged two panthers, wounded one, and missed another. My best day by far was on the 8th of this month, when I found a bear lying down, and shot her through the head. Not half an hour after this I found a cave with bear-tracks leading in, so I began to make a noise outside. Bruin looked out at once, and went closer into the cave. I then fired a shot in, and badgered her for some time, until, losing her temper, out she came at us with a growl. I hit her, and my second-gun man hit her too, and turned her. She did not go far when I put a bullet through her brain, and finished a brace of bears before breakfast—not a bad morning's work, eh?

We are now in for our rainy season, and the rain is awful. I have not got much bee-news for you. I have tasted honey lately from a small bee about $\frac{1}{16}$ inch long all over. It builds in hollow trees in the jungle. Natives cultivate this honey in earthenware pots, but do not understand the management of them. The bee is strong on the wing, and makes most delicious honey, really first class, of a beautiful light color.

There is one other kind that makes a very large hanging nest high up on trees. This honey I have not had a chance of tasting; but I am told it is not as good as No. 1. The bee is much larger, and from the position of its nest I should say very strong in flight. Its nest contains a great deal of wax, but it is far too vicious to be cultivated. The little bee which I mentioned first would, in my humble opinion, pay if it were taken up by those who understood bee culture in the smallest degree. It is very common, and I fancy it depends chiefly on tree-blossoms for its honey-crop. The hives found in the jungle sometimes contain a tremendous weight of good honey, but the natives spoil it in their dirty way of tearing it out with their hands. There are, of course, several other kinds of honey, but these two alone have I seen so far. In the case of bee No. 1, if you take a nest in the jungle entirely out, another lot of bees will occupy the same hollow place in two months' time. From the amount of swarms one hears passing overhead, there must be enormous quantities of bees in the jungles. Experiments of sorts have, I believe, been made with bee culture in India, but I know nothing of the result. All the honey (or nearly all) which is sold to Europeans in towns is foreign. California supplies any amount of so-called French honey, and very good, some of it is. Persian honey is imported into Bombay; and my experience of it is, that it is very nice, extremely aromatic, and of a fair color. I believe it would answer to keep the small species of bee No. 1 in this letter, and cultivate blossoms for them to a large extent. I am now engaged in collecting specimens for a museum in Bombay.

N. Canara, India, June 10, 1887.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Sept. 15.

CHAPTER XLI.

And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.—GEN. 1:28.

Did you ever think of it, dear reader, that, after God had directed man to replenish the earth and subdue it, the very first gifts mentioned are the fish of the sea? Now, I have several times in my life felt a great inclination to experiment in fish culture; and as I finished the last chapter, wherein I mentioned to you that, by the assistance of the windmill, a running stream of water was now pouring into our carp-pond almost constantly, thoughts of fish culture began to revive. It was some time after dinner, while reading my mail, that my eye glanced at the *National Journal of Carp Culture*, which one of the clerks had laid on my table. While looking it over absently, my eye fell right on the following advertisement:

J. W. WHITE, Chatham Center, Medina County, O. I will sell Pure Scale and Parti-Scale Carp, hatched in the fall of '86, for \$1.50 per 100, and those in the spring of '87 for \$1.25. I obtained my stock from H. C. W. Muth, of Ohio. My express office is Spencer, Medina Co., Ohio.

The reason why it attracted my attention was because J. W. White is a particular friend of mine, for he has been many years a bee-keeper. As soon as I noticed his name, my mind ran back to the different times I had visited him during the past ten or fifteen years. Friend White is a most genial, clever old gentleman, and, like many of the rest of us, is somewhat eccentric. On my first visit I remember he was greatly taken up with bees, full of ambition and energy, and eager as any boy in his teens. On another visit I found him enthusiastic over crab-apples. He had different kinds on almost every tree in his orchard. They were of all sorts and sizes and colors, and he seemed to never tire in showing different specimens. He had also a new process for grafting, as he called it. It was really a sort of budding, however, and he taught me how to do it, in a very few minutes, so that I grafted some choice cions in some apple-trees at home, and every one grew at the first trial. This kind of grafting can be done at any time when the apples on the tree are ripe. This may, however, refer to early apples. A bud is put in, much as peaches are budded, and the whole is tied

up with woolen yarn. The yarn stretches and presently rots off, so that no further attention is needed. Friend White had so many new things to tell us about crab-apples and grafting, and about apples in general, that it was hard to get away from him; and I distinctly remember a remark that a neighbor who was with me made. Said he, "Mr. Root, you would think that neighbor White is just now all absorbed in this hobby of his; but I want to tell you that, no matter when you visit him, you will find him just as full of business projects and experiments as now. He is always enthusiastic about *something* new."

Now, friends, is it not a rather happy state of mind to be always enthusiastic and intensely busy in developing some of these new gifts God has given us? Our text says, "Replenish the earth, and subdue it." Well, if there is anybody who is replenishing the earth, and subduing it, it is this gray-haired friend of ours, John White. When I saw that advertisement in the *Carp Journal*, I noticed, too, the very low price at which he offered carp (\$1.25 per 100 for "little ones") my mind instantly comprehended the state of affairs. Our old friend has got through with crab-apples, and has struck on carp culture. He has probably got fish all over his farm, about as he had crab-apples all through the orchard when I last saw him, and I suppose you know that I myself am much after the fashion of friend White. Said I, mentally, "It is only ten or twelve miles, and I am going to visit him very soon. I declare, I believe I will go this very afternoon." And while I laid my plans and hurried around, I felt the blood in my veins start anew under the influence of my sudden project. I first asked mamma if Huber could be ready for a ten-mile buggy-ride in half an hour. She replied in the affirmative, and Huber himself replied with a small war-whoop. Then I went down in the lots to tell the men about their work while I was gone, and then back into the factory and into the office; but in spite of all I could do, it was twenty minutes after three before the

letters were read and answered, and work out of the way. I knew it was late to start, but I like to do things when the spirit moves me, and so Huber and I pushed ahead, even though the sun was settling a good deal faster than I wanted to see it settle that afternoon. By the time we reached friend White's there was only about an hour of daylight left. My friend looked somewhat older than when I last visited him, but there was the same animation, especially when I began to talk about carp. As we passed through the gate, and his wife came out to welcome us, he introduced me with a remark something like this: "Wife, here is Mr. Root, come all the way from Medina just to see me a little while; but for the life of me I can not think what should bring him to see such a poor worm of the dust as I am."

Then he went into the house, got a couple of large slices of bread, and off we went for the carp-ponds. When we first made preparations for the trip it was so near noon we expected to get back in time for supper; but after we got into the buggy, Huber volunteered the information that mamma gave him a bag of bread and butter, and we had just lunched from this bag of bread and butter, with appetites sharpened by the keen air of the September evening. By the time we got to the bottom of the bag, however, Huber and I both felt sorry that mamma hadn't taken a larger paper bag; and when friend White came out with his beautiful large slices, I don't know just what Huber thought, but I felt very much like wanting a sample of the nice bread that Mrs. White knows how to make. Time was too precious, however, even if I did know how gladly all the refreshments of the household would have been placed at our disposal had I said the word. There was only an hour before us, and I expected to make that hour count. We passed through the barnyard, and out near the summit of some great hills. I wondered at the time why friend W. didn't take us directly down into the valley. To my great surprise, the first pond was over near the summit of the hills. It was arranged so as to take the water from a gully that had washed between the crests of the hills. In fact, this gully received the water from, may be, fifty or a hundred acres of upland. As this pond was a type of a series of other ponds that extend clear to the foot of the hills, I will try to make a somewhat rough diagram here.

Let the dotted line in the diagram repre-

sent the course of the waste water. At A it comes down between the hills on either side.



Fig. 1.

DIAGRAM OF J. W. WHITE'S CARP-POND.

At B a piece of four-inch tile is placed in such a way as to turn the water into the pond. If more water comes down into the gully than can pass through the four-inch tile, it follows the course of the dotted line in a ditch dug along in the hillside. This latter ditch is perhaps two feet deep, the sides being slanted like a letter V; and this ditch is only for the purpose of conveying away any surplus water that may come down during an unusually heavy rain. At C is the outlet, made of six-inch tile. Now, the sides of the pond where they were not formed by the bank of the hill, on either side are built up very rudely and cheaply. The clay and gravel are simply piled to a sharp point. In fact, the dam at many places is hardly wide enough along the top to walk on. I at once commenced to remonstrate, and asked if such frail structures wouldn't be washed away by heavy rains. His reply was characteristic:

"Why, Mr. Root, how can the pond wash away, or even overflow, when no more water can get in than runs through the four-inch tile, and the outlet is a six-inch tile?"

I may not have got the size of the tile just right; but the point is, that the outlet is a size larger than the inlet. In order to catch every bit of rain, a little mud dam is made across the waste-water channel, just below

the inlet at B. A *heavy* rain washes away entirely this little mud dam made with the hands, while it suffices, during a light shower, to turn *all* the water into the inlet at B. Lest you may not get exactly the idea of this inlet at B, I will make it a little plainer in Fig. 2. The arrows show the water-course.

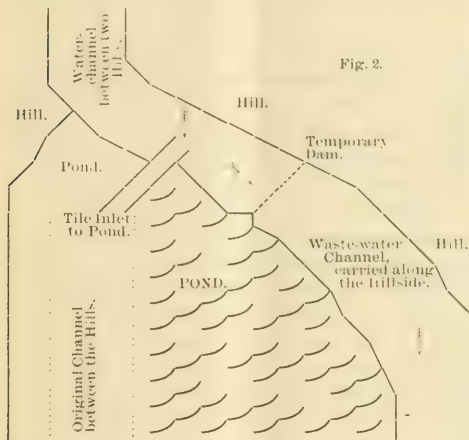


DIAGRAM OF INLET AND WASTE-WATER PASSAGE.

You will observe, that by watching your grounds for a convenient spot you have nothing to do but to dam across from one projecting point on the hillside to another on the opposite hillside, the deepest place being right at the outlet of the pond at C. The height of the dam ought to be so as to give three or four feet of water in this deepest portion in the winter time. Carp are often wintered, however, in less than two feet of water; and during the coldest weather of last winter (1886-'7) our own pond did not have more than 18 inches of water, and no fish were lost. It is probable, however, that circumstances were unusually favorable; for during the previous winter we found, floating on the water, when the ice thawed off, forty or fifty great big fish, each weighing a pound or two. I would suggest,

therefore, that the pond where your fish are to be wintered have at least a small spot not less than three feet deep. If this spot has an accumulation of soft mud in which they can burrow, it would probably be all the better.

When I commenced asking about the outlet, friend White remarked :

"Oh! yes, Mr. Root, that is what I wanted to tell you about. The books and papers talk about a complicated arrangement that hardly anybody can understand, and I puzzled over their diagrams a good while, and then made an arrangement of my own. See here."

While speaking, friend White uncovered a sort of box, or chimney, right in the middle of the dam, just over the outlet; and in order to make it plain I think I shall have to use another diagram. This diagram represents a cross-section of the dam, running through it at right angles, just where the outlet comes.

You will notice in the diagram below, the arrangement is such that all water that gets out of the pond comes out from the lowest point in the pond. There are many reasons why this is preferable to letting the pond overflow at the *top* of the dam. First, we need to make every effort possible to keep the water in the pond *warm*; in fact, it can not be too warm to have the fish make a rapid growth, and therefore we can by no means allow the surface water, after it is warmed up by the sun, to pass off over the dam in the way the waste water usually comes off from ponds. Another thing: When water is stirred up, the muddy part always settles down to the lowest point; and if no provision were made for removing the accumulation at this lowest point, the pond would soon become filled up with mud, and we should have no pond at all. This often happens in ordinary ponds across a stream fed by surplus water from rains.

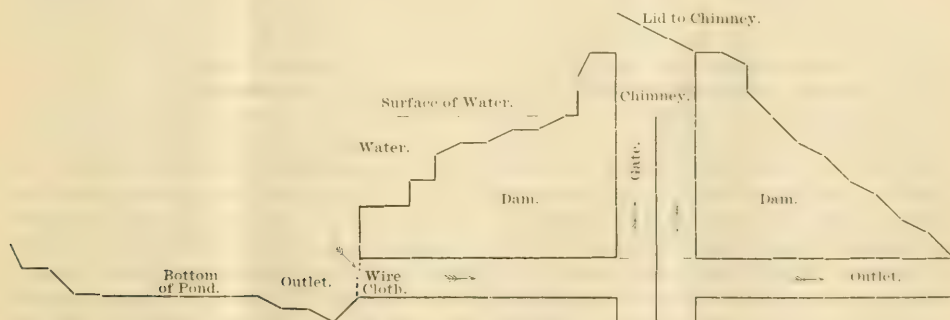
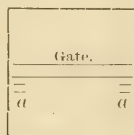


DIAGRAM OF OUTLET AND OVERFLOW.

With the arrangement above, whenever the pond becomes too full the surplus passes out directly from the coldest water in the deepest portion, for cool water always settles to the bottom, and warm water rises to the surface, as you are well aware. The outlet-pipe, as I have told you before, is of pretty good-sized tile, depending, of course, on the area of the pond. Friend White's ponds were all of them small ones—perhaps not more than twenty or thirty feet wide in the widest part, and may be fifty or a hundred feet long, twisting about among the hills, as a matter of course. For such ponds as these, a four-inch tile may be plenty large. In this case we should have the inlet only three inches. If an error is to be made, however, it is better to make it on the safe side, so we will suppose our outlet is our ordinary six-inch tile. This tile projects into the wooden chimney before mentioned. This chimney should be made of 1½-inch plank; and in order to have plenty of room inside, perhaps we had better make the internal dimensions 8 x 10 inches. Now, if there were nothing inside of this chimney, the water would go straight through the tile; but a partition is formed, in the shape of a movable gate. This gate is simply a board 8 inches wide and 3 feet long—that is, if you want the water to stand at just three feet in depth from the lowest point in the dam. If you can have four feet of water, make your gate four feet long, and so on. This gate is held just in the middle of the chimney by a strip of wood, say an inch square, nailed securely into the opposite sides of the chimney, thus: *a a* is the strip.



TOP VIEW OF CHIMNEY.

I wondered why the water didn't leak out around the board simply laid against these strips of wood; but friend White replied, "Why, bless you, friend Root, we just put in a shovelful of bran, stable manure, or any thing else that is handy, and this soon tightens the gate up." Bran answers nicely for such purposes, as it is carried into the cracks by the water; and when it swells it makes a sort of paste that stops up all crevices. This gate is not to be removed until you want to draw all the water off from your pond. When a shower comes up, the

water comes in at the inlet until it raises the water in the pond higher than the top of the gate; then it comes down over the other side. By raising the lid of this wooden chimney we can look down and see the water in the chimney at exactly the same level as the outside water in the pond; but whenever there is an overflow it rises so as to pour over the top of the gate; and all the water that gets out comes directly from the bottom of the deepest spot in the pond. Now, is not this ingenious, and simple too? Over the mouth of the tile, on the inside of the pond, is slid a cap of galvanized wire cloth, the meshes being ¼ inch square. It strikes me that this cap of wire cloth will be speedily covered with mud and accumulations; but friend White didn't mention having any trouble on that score. As his ponds are only three or four feet deep, it would not be much of a task to wade in and clean off this wire-cloth cap; and while I think of it, I believe I would have a depression just under the end of this piece of tile, in which the soft mud might drop so as to clear the wire cloth. Of course, you will have to scoop it out when the depression gets filled up. Our carp-books talk about extensive collectors to be put in right here at the mouth of the inlet; but friend White said he didn't have any such thing, and didn't see any use of it.

The first pond we viewed was empty. It had been drawn off some days before, when he expected a big rain that did not come. As the water, however, was caught in the pond just below, none of it was wasted; and this lower pond must have needed it badly; for when we went down to look at it, it seemed to me it was pretty nearly dried up. When one of the slices of bread before mentioned was thrown over into the water, however, we found there were fish enough, and they were certainly lively enough, even in such very close quarters. They literally covered the piece of bread, and scrambled over it. In fact, there seemed to be thousands in that small compass. I asked if they didn't die for want of more water. Friend White replied, "Why, friend Root, there is something remarkable about this. These fish seem to be perfectly healthy and well. There has not been a dead one on the surface of the water for weeks; and the cramping of them in such small compass during this extremely hot weather seems to have no bad effect at all. When the pond was a good deal higher, however, they began to die at one time so rapidly that I be-

came alarmed, and was about to conclude they must have more water from some source or they would all die. But all at once they stopped dying, and have been smart and healthy ever since, as you see them now. There is surely some hidden truth that we haven't yet got hold of in this matter of carp-keeping."

There is a good moral here, friends. We are all prone to be in haste to decide what the matter is with our bees, fish, and other domestic animals; but a great many times a little patient watching would show us that we are entirely wrong. He resumed:

"Why, when I drew off that first pond a few fish were left in the mud, to be gathered up and taken to the lower pond at some other time. They were forgotten, however, and when remembered I felt certain they were all dead. Imagine my surprise to find them alive, and apparently unharmed, although they had been several days almost without any water at all. They simply burrowed in the soft mud."

This fact indicates what has been stated many times before, that carp are wonderfully tenacious of life. When you are in a hurry you can pitch them on the grass, especially if the grass is wet, and leave them for several hours. So far as I can discover, it does not seem to harm them. Now, although friend White is remarkably successful, he has not taken nearly as much pains as he might do, and his ponds were not remarkably tidy at the time of our visit. I noticed marks of chickens, and, if I remember correctly, also ducks and geese, in the mud around this second pond. When I asked if they didn't gobble up the fish he said he supposed they did, and that they must be fenced out; but as the fish were so plentiful it didn't matter very much. Just then I remembered his advertisement of carp for only \$1.25 per 100, and I interrogated:

"Look here, old friend; how do you catch the fish, even after you have got them, so as to sell them so cheap?"

"Oh! that is the easiest thing in the world. I just take the scoop over there and dip them out; take out what I want, and let the rest go back in."

"But didn't it take a good deal of scooping to get a hundred fish of the size you want for an order?"

"Why, bless you, no. At one time we made careful count, and I actually brought out 556 fish at one dip. I called them up with a piece of bread, as you see them there, and I got the scoop right under them."

I felt like taking off my hat and bowing my head to the superior skill of this old gentleman whom I had decided to call upon, and felt again the folly of living for years so near by our neighbors, and going through life without even knowing what is going on within ten miles of us. In fact, I had several times thought of making long and expensive journeys to see carp establishments in good running order, and here was this old friend fussing away at home by himself, who had made a great stride in advance of any of us—at least, I call it a great stride. With his rude appliances and cheap, simple little mud dams, he had been selling carp to stock ponds for about one-fourth the usual prices, and he was doing well at it.

"Friend White, what does all this straw mean in the water, and up along the shore of this pond?"

I had concluded mentally he had put it in for the carp to attach their eggs to while spawning; but I thought I would move cautiously this time.

"Oh! that is the straw left after I feed them oats in the bundle. It does not look very tidy, but they seem to like oats in the bundle better than in any other way; and it is a nice place for the little carp to dodge around among the straws."

Did you ever! feeding fish oats in the bundle! No doubt those little chaps took as much comfort in skulking around through the straws as fowls do around straw-stacks in a large barnyard. I decided not to find any fault with friend W. while he evidently seemed to know so well what he was doing.

The next thing that attracted my attention was the handles of some frying-pans, or skillets, that were just under the water on the opposite shore. I came pretty near asking him if he fed the fish frying-pans as well as oats in the bundle; but I was beginning to think I had better move carefully. The explanation was, "Why, certainly; those frying-pans are what we cook the corn-meal in. You see, the fish are very fond of corn-meal mush, and we just carry it down to them and shove it under the water, and, oh my! how they do go for it! We have two frying-pans, so as to cook in one while they are eating out of the other."

No wonder friend White's fish grow and multiply and replenish the earth. I didn't suggest to him then that he was fulfilling the scriptural injunction by raising fish; but he will know it when he sees this in print.

We passed down to the next pond. This

was a new one, just finished, and ready for a summer shower to fill it up. The dam here came right up by the side of the road, and it was supported and made strong by a willow hedge. This was another idea worth many times my trip. A willow hedge would grow splendidly along the bank of the pond; and after their roots get well anchored in the soil, it would take a freshet indeed to break the pond away. This pond is to be quite a little larger than the others. The next one he called his "store-pond." It was simply to keep big fish in until they wanted them to use. It might have been twenty feet wide by thirty feet long; but, so far as I can remember, I think the dimensions were smaller instead of larger. The idea became more and more apparent that carp could be raised in a little pool of water just as well as in a pond covering acres. This pond had been in use long enough so that the banks were covered with a grassy sod. And here came out another of his plans. During a dry season a part of the ponds were drawn off, the ground harrowed up and sown to grass. When the grass gets a good hold the ponds are filled with water, and the fish are allowed to graze and dig out the roots; and this grassing and sodding process makes the dams themselves impervious and strong. The ponds for summer use, and for keeping carp for the table, may be very small and very shallow; in fact, the latter seems to be preferable for spawning purposes. When winter comes, take all your fish and put them in a pond having holes three or more feet deep. It is by no means certain, however, that this depth is necessary.

The next pond we visited was quite narrow but rather long. In here were the largest fish, and it was a treat indeed to see them swim around with hardly water enough to cover their great backs. As they curved their bodies and gracefully moved about under the rays of the fast-setting sun, it seemed to me I never saw a prettier sight. They were comparatively tame, and the sound of their lips as they nosed about among the water-plants plainly indicated they were feeding. When asked if they could be safely wintered in such a small pond as this, friend W. replied:

"Why, Mr. Root, you will hardly believe me when I tell you that I once found one of those great big fish frozen fast in the ice. He was apparently as dead as a door-nail, and so I got my ax and chopped him out, thinking that a frozen fish would be just as nice to make a dinner of as any. I laid him

down on the ice, sticking fast to a great chunk, and, pretty soon to my great surprise, he commenced flopping about. I put him back in the water, and it never seemed to hurt him a particle."

Now, then, if freezing fish fast in the ice does not kill them, how do we know that cold kills them at all?

As his fish have outgrown their small quarters, many of them, he has scooped out the largest ones and put them around in different places on the farm, temporarily; and in a running brook from a spring near his house he had placed a number of great big fellows, waiting until they were wanted. He said he felt quite anxious about them, for with a heavy rain the water would pour down between the hills so as to overflow this brook run entirely. Now, I should have picked upon this low spot close to the spring for my carp-ponds; but he wisely decided in the outset that he couldn't risk any ponds on low ground that might by any possibility be covered with water; and by so doing he has demonstrated to the world at large that fish may be produced in countless numbers, and at an almost insignificant expense, on almost any upland farm, or on any ground which it may not be advisable to use for any other purpose. If rain water alone will keep a carp-pond through so dry a summer as that of 1887, it seems as if it would be safe to decide they could be kept safely through an average season. As we drove homeward, however, I thought of my windmill and its incessant stream of spring water; and I felt as if I thought more of it than I ever did before. Such a windmill would have been worth ever so much to friend White.

Although it was quite dark when we were ready to go, friend White insisted on getting some apples and pears for us to take along. Huber seconded this suggestion quite heartily. As we were getting into the buggy I suggested that I was writing a book, and felt that I had been greatly enriched by my visit, when our genial friend replied:

"Why, Mr. Root, come down and bring your wife, and stay a whole week or two weeks, and it sha'n't cost you a copper for board and lodging, and I will tell you all I know about the fish, and we will have a good time watching and working with them."

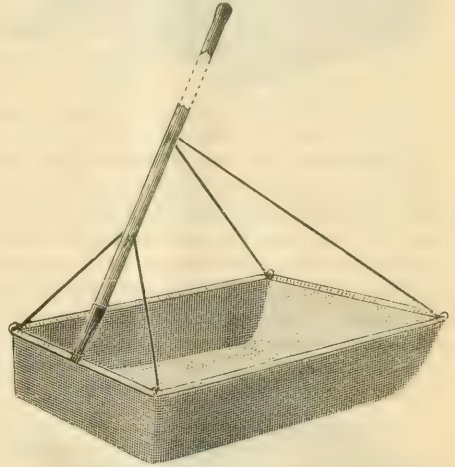
I told him that, while I thanked him ever so much for his kind offer, it would be entirely out of the question; and as I went away I figured up mentally the amount of information I had secured in just about one

hour. Why, dear reader, what I saw and learned during that hour would make quite a nice little book, were I to tell it all.

As we passed the little country town of Chatham Center, Huber asked if they didn't keep something to eat at one of the stores. I told him we would see; and when the man said only a dime for a nice bagful of crackers and cheese, I thought he must have made some mistake. Surely no one ought to complain that he can't get enough to live upon in such a land as this, flowing with milk and honey, and with ponds and streams filled with fishes. Before we got ready to partake of our crackers and cheese, however, Huber had forgotten his hunger and gone to sleep, and for two hours he slept with his curly head across my lap. When mamma ran out to meet him (for she had been watching through those two long hours for the sound of buggy-wheels) she declared she never thought so much of Huber before in her life, and added, she believed she was about as glad to see his papa too as she ever was before. That last observation, I want to tell you, was a pretty strong one; but as she expected us at home about dark she kept thinking that Meg had run away, or that the cars had run over us in the dark without anybody knowing it, and things of that sort.

The next morning, almost my first work was to make a scoop like that shown on next column. A piece of galvanized wire cloth, four meshes to the inch, and exactly a yard square, is the principal expense of the machine. This wire cloth is worth now about 8 cents per square foot, which would be 72 cents for the amount required for the scoop. Notch it in the corners, and bend it up as shown in the engraving, so the sides will be about five inches high. Now take a piece of very heavy iron wire, about the kind used for bails of very heavy water-pails, and bend it so as to surround the upper edge of the scoop. Have your wire long enough, however, so the two ends can be bent up side by side, where the handle goes on, say 6 or 8 inches long. For a handle, I found one that had been broken off from an iron rake, having a good stout ferule on the lower end. Bore a hole into this, large enough to let two wires go in, and wedge it solid with a large nail. Now put in the braces as shown in the picture. These are also made of the same kind of wire that goes around the scoop. Where they are fastened to the rake-handle a hole is bored so the wire will drive through close, and then the end is bent over. The other end is simply bent

around the rim of the scoop. To make this last bend you will need to heat the end in the fire, in order to make it soft. The edge of the wire cloth is rolled over the heavy wire, and soldered. The corners are also soldered. Any tinner can do the soldering easily by using the soldering-fluid required to solder zinc; or if you have a set of soldering-implements you can do it all yourself.



SCOOP FOR GETTING CARP OUT OF POND.

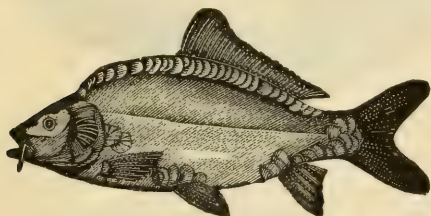
As soon as the machine was done I put it over my shoulder and marched off to the carp-pond. I didn't take anybody along—not even Huber, for I had tried so many times to catch the carp, and failed, I confess I hadn't very much faith. I went up close to the water's edge, reached out as far as I could, and dragged the front edge along the bottom of the pond. I got lots of leaves and mud and sticks and weeds, but "*nary*" a fish. I began to say to myself, "There, that is just as I expected;" but I thought I would try another dip where the water was deeper. This time I did have one bright sparkling little finny chap that was handsome enough to raise my spirits as high as they went down because of the failure of the first dip. He was so lively I could hardly get hold of him even when I had him out on dry land. I put him down on the grass, and wasn't he handsome! It had been raining, and the sun had just come out through the clouds; and as the beautiful starry scales glistened in the sunlight they looked like sparkling buttons that Dame Nature had sewn on so as to make a grotesque belt. Some of the new fashions in dresses are very pretty; and from a child I have always rather liked bright buttons arranged with taste. But did ever the art of milliner or dressmaker

begin to compare with this little bit of wriggling and twisting animated nature? Was even Solomon *in all his glory* arrayed any thing like one of these? Now, I really wish I could give you a picture of this one little fish that would do him justice. We will try.



A YOUNG MIRROR CARP AS I SCOOPED HIM OUT OF THE POND.

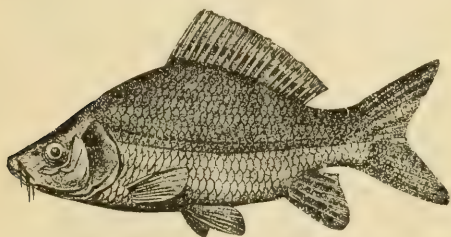
I believe the cut above shows you just about the size of the fish I first scooped up. When I had admired him sufficiently I put him in a tub that is fed by the windmill, where the Jersey cow drinks, and I scooped for some more. This time I got half a dozen. Nature does not make them all alike, and here is a picture of one of the next.



ANOTHER MIRROR CARP.

Where there are no scales they are as shiny and glossy as a piece of bright silk.

At the third scoopful I had a whole dozen of different markings and sizes, and these pleased me so much that I selected three, put them in a quart fruit-jar, and sent them to the engraver. The third one has scales all over, as you notice, and this is called a "full-scale" carp.



FULL-SCALE CARP.

Now, a great deal has been said about these three different kinds of carp; and breeders have talked a good deal as we would talk about the stripes on our bees. Some declare that carp should have no scales

at all; others are strongly in favor of mirror carp, and still others as vehemently declare the ones with scales all over are hybrids, mongrels, etc. My opinion, however, backed by friend White, is, that it does not make a particle of difference whether they have scales, no scales, or a few scales here and there.* The latter are by all odds the handsomest. But it may be that those without any scales at all are the easiest to prepare for the table. This will be determined when we get further along in the industry, probably.

Do you want to know how old carp are, the size of the pictures? Well, probably two or three months. I am inclined to think the breeders are spawning all the time during warm weather, for there are little carp in our pond now not bigger than a pumpkin-seed, and from that all the way up. Great stories are told in regard to the rapidity of their growth. Friend White says he sold a neighbor 25 fish of the size I have shown you in the pictures, or about that. This neighbor fixed a little puddle for them (for it could hardly be called a pond) just below a little spring; and as they loved to see the fish eat, they were fed daily with scraps from the table, all they would eat. He sold the fish in harvest time, and at the time of my visit, toward Oct. 1, he said that many of them were as large as a man's hand, and fit for the table. Very likely they will grow as fast as chickens, and require very much less expense in the way of food.

ARE CARP GOOD TO EAT?

There has been much said through the papers, as you may know, about the fitness of carp for food; but so far as my taste is concerned, I must say most emphatically they are excellent. I am a little notional about fish. I don't care much about white fish; and the kinds of fish that many people praise I should object to; but I have from childhood considered black bass one of the choicest dishes that can be served to appease a man's hunger; and when I tell you that I consider the carp, just as they are taken from our ponds, without any feeding or fattening, fully equal to the bass, it is saying a good deal. The flesh is a trifle sweeter and a little more greasy. Aside from this I don't believe I could tell one from the other.

*A flock of poultry may, by a little pains, be made all black or all white; and the color of the feathers will in no way change the habits or valuable traits of the poultry; and my opinion is, that scales or no scales has as little to do with the rapid growth or of the quality of the flesh of the fish.

FIRE-EXTINGUISHERS.

CHARRING CHAFF HIVES TO DISINFECT FROM FOUL BROOD.

FRIEND ROOT:—Seeing your mention in *Our Homes* of some new fire-extinguishers you have been getting reminds me of some experience of mine and the conclusions I drew from it. I don't know what kind you have, but I suppose it is one of the forms of "hand-grenades" in which a small quantity of fluid, claimed to have great power against fire, is thrown up on the blaze.

In public exhibitions, I believe the agent generally builds a close wall of boards, against which a fire is built with kerosene oil and light combustibles. When the fire is well under headway, the contents of the extinguisher are applied with wonderful effect. Well, now to my experience:

In disinfecting hives in which there had been foul brood, I boiled them, as I told you. As chaff hives were too large to boil, and steam was not convenient, I tried charring the inside. This was coated more or less with wax and propolis, often with paint as well. I sprinkled a few light shavings on the bottom, and saturated them with kerosene, pouring it all over the sides and bottom. When the match was applied you may be sure there was a fire. Flames, filling the whole top of the hive, rose several feet above it, making it impossible to stand near, on account of the heat. Most onlookers would have said that the hive was doomed. How did I extinguish it? Why, a single gill of water—scarcely over a tablespoonful sometimes—thrown into the midst of that roaring, seething mass of flame, would extinguish it instantly. I can recall only two or three instances out of many in which this small quantity of water failed to extinguish the flame instantly and completely, although often the whole inside of the hive had become thoroughly charred an eighth of an inch or more in depth. I will not try to explain it; but though I do not *know*, I suspect that these fire-extinguishers act in exactly the same manner. I have seen the statement, apparently authoritative, that an analysis of one of these extinguishers showed the contents to be nothing but salt and water, and that in another there seemed to be nothing more that would have any effect on fire. It has been shown that salt water is slightly more effective than fresh for extinguishing fire, and these extinguishers are probably more effective than so much water to just that degree and no more.

A pail or two of water, covered to prevent evaporation, and with enough salt in it to keep it from freezing or being used for other purposes, with a cheap force-pump hanging by it, will be found, I think, the best and most reliable provision for putting out fires.

J. A. GREEN.

Dayton, Ill., Sept. 27, 1887.

Friend Green, I am very glad indeed you have taken hold of what I agree with you to be a monstrous swindle; and I am glad you take hold of it without gloves on. I had always been prejudiced against these things until I saw a lot of hand-grenades put up in the railroad depots and offices. My conclusion was, that if the railroad companies indorsed them they must be a good thing. We paid, I think, \$18.00 a dozen, and they

were hung up around the factory. One day the copper wire loop that supported one of them broke, and it dropped beside one of the workmen. We all supposed, of course, that a great volume of carbonic-acid gas, or something similar, would be liberated by the breaking of the glass. The Babcock fire-extinguisher, and perhaps many others, liberate carbonic acid by pouring the diluted acid on chips of marble or something of that sort; and it is well known, that carbonic acid extinguishes fire exactly as a wet blanket will act, providing, of course, there is a sufficient volume of the gas. Just how these little globes containing the transparent liquid liberated such volumes of gas, we didn't know; but we thought it might be by compression, like bottles of soda water, etc. To our surprise, however, this glass that accidentally fell and broke did not liberate any gas whatever. No cloud of steam or vapor arose to choke the occupants of the rooms, or astonished our eyes. A piece of the glass contained some of the liquid, and it tasted like salt and water and nothing else. At the time our warehouse burned I got a lot of these hand-grenades and threw them into the edges of the fire. In fact, I tested them on piles of lumber where they certainly ought to have produced some effect in staying the flames. Many witnesses can testify that they produced no sort of effect whatever. Where the liquid fell on the boards it put out as much fire as a pint of water would be likely to do. This ended our confidence in the Harden hand-grenade.

A few months ago some agents were in town, having for sale a long tin tube holding perhaps a quart or two of some liquid. They made a test exactly as you describe it, on our public square, and it was wonderful how the fire went out. I picked up an empty tube, however, and tasted of the liquid remaining in it, and it seemed to me to be salt and water—nothing more. I suppose most of you remember about throwing salt into the fireplace to put out a burning chimney, or even throwing it into the stove. If there is a good hot fire, the fumes of the gas liberated will extinguish the flame. But suppose, however, it is not salt and water in these tin tubes and glass bottles. Suppose it is some chemical. Is it likely that said chemical is so very costly that a weak solution is worth \$18.00 per dozen? I do not want to be uncharitable; in fact, I prefer to be among the class who "think no evil;" but if our American people are being humbugged to the extent of the foregoing, it is high time indeed that the press of our land take the matter up and expose the swindlers. I suppose this would be out of the line of the experimental colleges and stations in the different States; but there ought to be somebody with scientific knowledge sufficient, and time and means, to make the experiment to protect the people from such like swindles. Now, if these fire-extinguisher people are honest, and they have got something that is so costly that it can't be afforded for less than \$18.00 per dozen, it won't hurt them a bit to be held up for inspection. It does not hurt any honest business to ventilate it thoroughly.

In regard to disinfecting chaff hives by fire, Mr. Cowan said he would feel safer about it to take out the chaff and burn it up, or destroy it in some such way, then immerse the chaff hives in boiling water; and this is what we are preparing to do with ours.

The secret of the instantaneous extinguishing of the fire in the chaff hive is simply the generation of steam in a confined space; and it is well known that the fire in any building may be put out instantly by opening a steam-pipe so as to fill the building with vapor. Factories and other buildings where heating is done by means of steam-pipes have often extinguished fires in this manner. No blaze can exist in a room which is filled with condensed watery vapor.

REPORTS DISCOURAGING.

"LOTS OF BEES WILL STARVE."

AS the honey season is now over I will send you my report. I commenced in the spring with 13 stands; increased to 15 by swarming, and got 50 lbs. of honey. This has been one of the poorest honey seasons I have seen since I have been keeping bees. Last year's drought killed the white clover. The bees worked well in the flax-fields while they were in bloom. Lots of bees will starve this winter, unless fed, which will hardly be done, as the most are kept in the old box hives. WM. O. HEIVLY.

Raymore, Mo., Sept. 29, 1887.

This has been the poorest season for honey we have had for a number of years. There is no surplus; and if the drought continues, bees will have to be fed to carry them through the winter.

Delhi, Ill., Aug. 3, 1887.

H. D. EDWARDS.

THE FIRST FAILURE IN 22 YEARS.

Bees have done nothing this year. I had 20 colonies this spring; had 2 natural swarms, and divided to 4. I am feeding now, and want to get them in good shape for winter. They are making a little honey now from heart's-ease and a few other weeds, but will not make enough to winter on. This is the first year that is a total failure, in my recollection, and I have kept bees for about 22 years. We must have disappointments sometimes; but don't give it up yet. THOS. CHAPMAN.

Rocheport, Mo., Sept. 22, 1887.

ALAS!

Blasted Hopes is not a fair picture of a failure in this locality this season. I have 30 hives, which I put in good condition early in the spring, hoping to reap a good harvest; but, alas! I shall not get 50 lbs. of honey from the whole lot. Last year I took as much as 96 lbs. of comb honey from a single hive. If this is not grounds for having the blues, I wish some one would furnish them. I will not give it up, though, but will feed and take care of my stock just the same as if they had done me good service this season. It is a complete failure in this whole country—no doubt of it; so let all the friends join in sympathy with us down in the sunny South, especially Alabama. J. J. B. McELRATH.

Centre, Ala., Sept. 22, 1887.

REPORTS ENCOURAGING.

AN AVERAGE OF 200 LBS. PER COLONY; NO LOSS IN WINTERING.

THE following is the report of a Cayuga County apiary for the past season: Spring count was 8 colonies, which were doubled by first swarms. The yield was 200 lbs. per hive. In all, there was 1500 lbs. of comb honey, and 100 lbs. of extracted. The bees have always stored from three to four times as much as their neighbors. They are wintered upon summer stands, and have never lost a colony. The net proceeds of the product of the little busy bee is all used in ministrations to the needy, so each may draw his own inference as to the character of his (the bees') inspiration for business. With proper care I think there is as little risk in wintering bees as in wintering any other stock, safety being dependent upon many little and timely attentions.

Poplar Ridge, N. Y., Oct. 5, 1887.

J. MEKEEL.

The explanation you mention, friend M., I think is in the second sentence above. Eight colonies were made powerful ones early in the season, by giving them new swarms. The difficulty with this plan is in making new swarms unite with an old stock and go to work peaceably, without trying to swarm again very soon. It will doubtless work much better during a season like the past, than at other seasons.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FACTS IN FAVOR OF THE BEVELED EDGE.

WE see that several of our prominent apiarists have sort o' gone back on the beveled edge on the Simplicity hive. Now, we have used both, side by side, for years, and we give the preference in each and every respect to the beveled edge, the opinions of such men as O. O. Poppleton, A. J. Cook, and E. E. Hasty to the contrary notwithstanding. Possibly for their locality the square joint would be best; still, we think there is a great deal in knowing just how to use the beveled edge to bring out its superiority over the other. Friend Hasty seems to think it sucks the water up worse than the square joint. We wish to say, that we had a little experience last winter right in that very line. Several of our colonies were packed for winter by putting burlap on top of the frames, and then filling the upper story with loose chaff. The result was, that the chaff in every one of the square-edge hives became wet and moldy, and had to be renewed with new chaff twice during the winter, while that in the hives with the beveled edge remained dry and sweet until removed last spring. This may prove nothing after all, but it may be one of the straws that will tell which way the wind blows, just the same. M. W. SHEPHERD.

Rochester, O.

Friend S., since you mention it I recollect that my experience with loose chaff in the top of the hives was just about as you state it; and it was the main thing that decided me in using the beveled edge. In the old Langstroth hive, the same thing is accom-

plished by having the upper story larger, so as to slip over the lower one, resting on strips. I didn't like this arrangement, because the upper stories were not exactly like the lower ones, and could not be used for single-story hives. We sent out a good many hundred hives without any beveled edge, before adopting said edge, and at that time everybody seemed to think that it was a great improvement.

A LATE SWARM TRYING TO ENTER OTHER HIVES.

Yesterday, Oct. 2, I found a swarm of bees going the rounds of my hives, trying to gain entrance; and after being rejected by each colony they settled on a grapevine trellis shading a hive. There were at least two pounds of bees; and on examining I found them to be blacks, with a fine-looking queen. As they seemed very hungry I killed the queen and gave the bees to a colony of blacks. What caused them to swarm so near winter? I commenced bee-keeping three years ago, with one colony of blacks. I have now 13 colonies—10 Italians, 3 blacks. During the summer I increased from 5 to present number, and extracted 70 lbs. of honey. Italians all have plenty of stores for winter, while I have been feeding the blacks for some time. Surely the Italians justly deserve their praise.

La Fontaine, Ind.

JACOB SAILORS.

Friend S., the swarm you mention was probably a starved-out colony. During a time of scarcity of honey these are sometimes very frequent. See "Absconding," in the A B C book.

MOVING BEES NOT QUITE SUCCESSFUL.

I expect to move an apiary about 100 miles, by rail, next spring, in order to get to white clover and basswood. I have had some experience in moving bees, and apparently with success at first; but afterward they would dwindle in spite of all the care and feeding I could give them, pollen at the time being plentiful. Is this caused by the queen's stopping laying during transit, and interruption, or was it caused by the peculiarity of the season I happened to strike at the time of moving? M. F. TATMAN.

Rossville, Kan., Oct. 4, 1887.

I think, friend T., the dwindling was occasioned by the season of the year when they were moved. Wait until later in the spring, after the bees have commenced gathering honey and pollen rapidly, and I think you will escape the trouble you mention.

BEES POISONED.

I inclosed, a few weeks ago, a small vial of dead bees, which I think must have been killed by a poison which we used to preserve the cotton crop. My apiary is almost ruined. I can save only about twenty colonies out of 110. We used Paris green, London purple, and cobalt. When the poison was first applied we had frequent showers; but during the last application the weather has been very dry, and I think the dew on the cotton must have contained enough poison to do the damage. The bees work as much on the leaf as they do on the corolla and bloom. In the bloom they would not get any poison, as they open first every morning. The honey seems all right, as the family are still eating it.

Monroe, La., Sept. 24, 1887.

J. T. MOON.

Friend M., we are very much obliged to you for your report; and it indicates that our friends in the South will have to look

out for this matter. Where poison is used, I see no remedy but to move the bees away, at least temporarily. I don't suppose the honey would be endangered, for an amount of poison that would be injurious to human beings would kill the bees before they would have time to get to their hives. In your case it certainly would have been worth while to move your bees away.

ARE ENRAGED BEES LIABLE TO ATTACK BLACK OBJECTS?

I inclose a slip cut from the *Boston Post*. I should like to hear your opinion of it. Do they dislike black objects more than white, and would not robbing be a better explanation of the crossness it mentions in the beginning? E. D. WEED.

Noroton, Conn., Sept. 20, 1887.

NARROW ESCAPE FROM ANGRY BEES.

A farmer who is an expert in the culture of bees declares that they are the most interesting of creatures, and that their "cuteness" is wonderful. Like all living creatures, the bee has a natural enemy; in this case it is the moth miller, which sometimes drives the swarms to desperation and frenzy. Then it is that the wary keep at a safe distance from the hives. This particular bee-owner once saw a peculiar instance of the bee's hatred of black objects. It became necessary in some way to rearrange something belonging to the hive, when, like a host of furies, the enraged inmates flew out en masse and attacked the disturber of their peace. Quick as thought, the farmer's wife ran and threw her white apron over the husband's head, whereupon the bees did not alight on him, but instead attacked two innocent black hens who happened near by, and stung them to death in less time than it takes to write the story. Bees are "kittie cattle" indeed, as the farmer declared, yet bee culture has its charms, and is growing to be an industry among women; and it is said that it can be made to be very profitable if rightly managed.

Friend W., your newspaper clipping is like the greater part of them; and there certainly is no truth in the statement that the moth miller drives the swarms to frenzy. The idea has been suggested, that bees will sting a black hat more than a hat of any other color. I am inclined to think, however, that the material of which the hat is composed has more to do with it than the color has. Bees seem to be specially stirred up to fury by any thing in the nature of fur; and certain hats and caps may be offensive to them on this account. It has been suggested that this comes from the fact that the bear is the bee's great natural enemy; and the question arises, After the race of bears becomes extinct, how many years must elapse before the honey-bee forgets the bear and his furry coat?

A BAD ODOR FROM THE HIVES—NED IT CAUSE ALARM?

A few days ago I noticed a very bad smell in my bee-yard—something like moldy or soured honey-comb. On examining my twenty colonies I found that the smell came from the inside of the hives, all alike, both young and old colonies. The honey taken last week has a bad taste. That taken before that time was all right. Bees seem to be in good condition, strong and lively. GEO. H. ELLIOT.

New Straitsville, O., Oct. 6, 1887.

Friend E., we have noticed the same thing several times during the fall of the year, and I presume it is caused by some peculiar kind of honey gathered. I suppose you are well aware that the smell of buck-

wheat honey freshly gathered is very disagreeable to most people. In fact, it sometimes has an odor bordering on that from carrion. Other fall flowers give other peculiar odors—some of them quite unpleasant. This odor, however, soon disappears, for the bees have a knack of evaporating away every thing that is offensive, and it does them no harm, so far as we know.

THE SCRUBBING MOTION OF BEES AT THE ENTRANCE—WHAT IS IT?

There is something about some of my bees I do not fully understand. Last year the bees of two of my colonies stayed outside the hive for two months, apparently ready to swarm, but did not. They sit at the entrance of the hive all day. Like a regiment of well-drilled soldiers, they move up and down all together in a see-saw motion, apparently to make believe they were cleaning off the front of the hive. They seem to open their mouths, shut it as though a mouthful were gathered every time they move up and down; but close watching develops the amusing fact that they do nothing. At first I thought they were cleaning the hive; but there are no signs of it. They come out early and go in late at night. The hives that those bees are in are strong colonies, but they last year did nothing, and no doubt it will be the same this year. Now, can any of the bee-keepers tell me something on this point? I have smoked them in five or six times a day. In the day time they will scarcely go in, but scatter in all directions, fly off, come back empty, and go to work the same way. J. H. HANSON.

Barron, Wis., June 17, 1887.

Friend H., this matter has been mentioned, and has been discussed somewhat in our journals; but so far as I can recollect, no explanation has been given; and I have sometimes thought we should have to decide that it was a sort of idiosyncrasy that the bees had fallen into. I had supposed, however, that the operation resulted in scraping off the soft rotten wood; or on painted hives, the soiled surface of the paint. If you are sure they don't remove any thing whatever, it makes the matter still more mysterious. I don't know that I ever saw bees do it during a good flow of honey. If it is so in your case, I think I would remove the queen and get one that reared bees that were not lazy.

MATING AND BREEDING QUEENS ON AN ISLAND.

We are eight miles from shore on an almost desolate island (only fishermen here in fishing season), out of sight and hearing of hive-bees, none ever having been seen here save the forty nuclei I have brought with me containing three strains of virgin Italian queens. I also brought a choice batch of drones from my best queen. So you see I have it—an absolute control of their mating. If these queens turn out well I shall experiment largely next season, Providence permitting.

I wish to secure, next May, some queens for honey-producing qualities, of several races, for further experiment in fertilizing upon this island, hoping thereby to secure something a little ahead for business in my own apiary. I. S. HUCKINS.

Charity Island, Lake Huron, Aug. 29, 1887.

Friend H., we wish you all manner of success on Charity Island; but this thing has been started so many times in days past,

and never resulted very well, we perhaps have become a little incredulous. Very likely, however, those who started the projects had too much else on their hands, and the experiment failed, not from any fault of the island project, but because of neglect. The fact is, there is not any strain of bees that I know of that have been bred to any extent, particularly for their honey-producing qualities. So far as my knowledge extends, I do not know where you can find any better bees than Italians; and I am not satisfied that there are good strains and bad strains. There are certainly good working colonies and poor working colonies; but if anybody has succeeded in making these colonies transmit their superiority I have not heard very much about it. One reason is, no doubt, that it absolutely requires an island to manage it.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

Question No. 10.—If an employee discovers a swarm of bees during working hours, do the bees belong to the employee or employer? It is commonly considered that a swarm is the property of the person first discovering them, no matter upon whose land they may be.

If from the apiary of the employer, then no; otherwise, yes. A. J. COOK.

I should say it belonged to the employee, unless it was found on the land of the employer.

DR. A. B. MASON.

I should guess they belong to the finder, if he loses his time in securing them. I should let him have them in any event. G. M. DOOLITTLE.

I should suppose they would belong to the employee, and it would make no difference as to whose land they were found upon. W. Z. HUTCHINSON.

This is a legal question for lawyers to answer, but it seems to me right that they should belong to the employer, if found on his premises, and to the employee if found on other premises.

O. O. POPPLETON.

This is a question of law; but in a case of this kind which happened to us, we decided in favor of the employee. If he did not choose to tell you that he saw the swarm, you would lose it anyhow.

DADANT & SON.

Although not an important matter to the fraternity in general, this question is interesting. After discussing it somewhat in the family, I must say I don't know, and am anxious to see the answers of others. I would rather, however, have the answers of three good lawyers than of 100 bee-keepers.

C. C. MILLER.

Ask the lawyers. I think the man who found the bees is the owner, but he should pay his employer for the time he loses to secure them. Then, again, it would depend upon where he discovered them. If he found them in my apiary, very likely they

came from one of my hives; in that case he should take care of them, and they would be mine.

E. FRANCE.

To the employe. If he takes his employer's time to hive them, he should pay for it. It is commonly considered so, yet a person might be taken for trespass for going upon another person's property. A person discovering a mine upon another's land would not own it.

MRS. L. HARRISON.

The employer who should claim bees on such grounds would take rank as a pretty unjust and stingy man. The employe should pay for the time spent in securing the bees, and should let the bees go if he is at something which can not well be left without damage. The case of the hand who secures a two-dollar swarm for himself, and makes his employer five dollars loss by his absence, would be righted, not by giving up his bees, but by paying up the damages.

E. E. HASTY.

I do not know to whom they would belong; but morally it seems to me a happy chance for each to express true courtesy and generosity of feeling, each esteeming the pleasure accruing to himself from relinquishing his claims in favor of the other as of more genuine value to him than the possession of the bees would be. It is a case in which each should look not only on his own things, but also on the things of others—although I suppose the stronger claims would be on the side of the employe.

R. WILKIN.

In law, I am not sure; but if an employe of mine should discover a swarm near my apiary, in or out of working hours, and proposed to keep them, I think I should propose a settlement of our accounts. In many such cases I have never had an employe think of keeping them. There are two objections: First, the likelihood that they came from the apiary unnoticed. Second, it opens a wide avenue for corruption and dishonesty. Yes, the owner of the land has no claim on the bees.

JAMES HEDDON.

I am very glad indeed, friends, that this question has come up; for although it seems to me an unimportant matter, it strikes directly on this great question of labor and capital. Perhaps most of those who have answered the question are employers rather than employes, and, therefore, it would be quite natural that they should favor the capital instead of the labor side of the question. But I am pleased to note that the greater part of the answers rather favor the employe. If it were possible I should have been very glad to hear from those who work for wages by the day or month. Now, let me suggest, dear friends, that whichever side of the question be taken, it finally strikes on the question of wages—how much is a man worth? The responsibility is constantly devolving upon me of saying how much those in my employ are worth per day or per year; and I assure you nothing gives me greater pleasure than to be able to tell a man or woman that I can afford to pay them better wages than they have been getting. Now to the question: If some one in my employ, while working for me, should find a swarm of bees, and, without any hesitation, say, "Mr. Root, I guess I have done a pretty good thing for you this afternoon; I

found a nice swarm of Italians by the roadside, and there they are at work in that chaff hive," if this man did not so much as intimate there was a question of property, I should reflect something like this:

"There, here is another instance showing that this fellow is giving his time, talents, and ability entirely to my service, for the ten cents an hour that I pay him. If he continues to show this spirit he will pretty soon be worth 12½ cts. an hour." A good many times I advance wages just because of a single occurrence of this kind. Now, which is better—to get \$5.00 for a swarm of Italians you have found, or to get an advance in your wages of 25 cts. per day for 300 days (a year of working days)? In one case, the man who is striving hard to make all he can honestly, has made \$5.00 in one day; in the other, he has made a gain of \$75.00 in a year. Now, this is simple justice. The man who gives his whole time and attention to his employer's interests is worth 25 cts. a day more than one who is looking out for a chance to do something on his own account, while his time is sold to another. Just one more point: The man who would insist that the swarm of bees belonged to himself without any question, would be most likely to forget to mark off his time, even though he wasted a couple of hours in taking care of the bees. This is a sad reflection on humanity; but I do believe the great reason why so many are tramping about, hunting for a job, is because, when they get said job, in their greed and selfishness they forget to be thankful to their employer. Where a man sells his time by the hour to somebody else, a good man will regard such a sale as sacred as if he sold a bushel of apples to somebody else. Every apple belongs to the man who pays his money for it. Now then: Whenever one of our men finds a swarm of bees, I leave it to him to decide; or out of courtesy, as friend Wilkin expresses it, I would suggest to him that he mark off his time while he takes care of them, and call them his own. But his decision in the matter would, I think, pretty surely indicate his money value by the day or by the year.

Question No. 11—Do you use the slatted honey-board? If so, do you prefer to have them queen-excluding? In either case, will they pay for themselves in, say, three or four seasons?

I do not use them.

E. FRANCE.

I do not use honey-boards at all.

E. E. HASTY.

1. Yes; 2. In general, no; 3. Yes.

C. C. MILLER.

Yes. Yes. Most assuredly they do.

A. J. COOK.

No. I have never used them.

O. O. POPPLETON.

I do not use them, and doubt their practical value (to me).

R. WILKIN.

1. Yes. 2. Yes. They will, by keeping all brood out of sections.

MRS. L. HARRISON.

If we raised comb honey, we would use the slatted honey-board, queen-excluding, and think it would pay.

DADANT & SON.

First, yes, to a certain extent. I shall use them more largely in the future. Second, queen-excluding is my preference. Third, I think so.

G. M. DOOLITTLE.

I use both the slatted and the queen-excluding. I must have the queen-excluding in practicing the contraction method. I think they will pay for themselves.

DR. A. B. MASON.

I don't use that board, giving the preference to the zinc. If I did I would have it queen-excluding. I think they pay for themselves in less than three seasons.

PAUL L. VIALLO.

I use them, and prefer to have them queen-excluding. As well may you ask, "Will a *bee-hive* pay for itself?" They are *indispensible* when the surplus is taken from the top of the hive.

W. Z. HUTCHINSON.

Yes, I have constantly used my slatted sink break-joint honey-board since I invented it 8 or 10 years ago. With me it pays for itself every month. I prefer it queen-excluding, to the extra cost of making it so, which nearly doubles the cost of it, yet we gain nine-tenths of its advantages when not queen-excluding. This honey-board will surely come into general use.

JAMES HEDDON.

Question No. 12.—Is it possible to breed a non-swarming race of bees? If so, should we commence with pure Italians, or should we breed from several races?

No.

PAUL L. VIALLO.

I do not think it possible. W. Z. HUTCHINSON.

I think it is scarcely possible. R. WILKIN.

No, not when worked for comb honey.

G. M. DOOLITTLE.

It may be possible, but not desirable.

MRS. L. HARRISON.

No. All races would swarm under certain circumstances.

DADANT & SON.

I think it possible, but not quickly or easily reached. I suspect a pure race might be the best ground to work on.

C. C. MILLER.

I don't think it is, but an excessive tendency to swarm may possibly be bred out, especially if pure Italians are experimented with.

O. O. POPPLETON.

I don't know what may be possible; but I very much doubt our being able to produce a race of bees that would be non-swarming. It is nature to swarm, otherwise the race would run out.

E. FRANCE.

I don't know any thing about it. I don't dare to say no, for what seems an impossibility to-day may be an accomplished fact to-morrow or in the near future.

DR. A. B. MASON.

Judging from experience with other animals, I should say yes; but it will take time. I should commence with colonies that show little tendency, and yet were good breeders. I think Italians favorable for the experiment.

A. J. COOK.

The longer I keep bees the more I doubt the possibility of a non-swarming race. Crossing several strains or races tends to increase swarming, if I am correct. The nearest approach to success may be expected with a pure race.

E. E. HASTY.

No one can give more than an opinion. It may be possible, but would take a very long time, with most careful and persistent effort. Think of the length of time that nature has been breeding them just the opposite way. I would say, breed from crosses: if from any pure race, by all means, the brown Germans.

JAMES HEDDON.

Now, friends, in spite of the weighty opinions to the contrary, I am going to suggest that it is as reasonable to get bees that will not swarm as to have hens that don't sit. The only trouble is, we have not any beekeepers or bee-raisers who have the patience that our poultry-friends have had in selecting and encouraging—or, if you please, discouraging—special traits. To be sure, we can do it. If I am not mistaken, there are colonies in many of our apiaries that have never swarmed at all; and I shouldn't wonder if we have some queens that never will swarm. Are we sure, friends, that we have not got them already, if we just look into the matter? There would be one trouble in the way at present: The queens we rear will, in spite of us, be crossed by drones from swarming colonies. The poultry-men are ahead of us in that respect; that is, they have a great advantage in their favor.

NOTES AND QUERIES.

SMALL SWARMS LATE IN THE FALL.

I SHOULD like to inquire as to the probable cause of my bees sending out small swarms of a pint and less, at this season of the year. The honey-boxes are not full, and hardly any honey is being gathered now, or has been for more than a month. The dry season has shortened the honey-crop a great deal.

E. A. BISHOP.

Talladega, Ala., Sept. 29, 1887.

[Friend B., such small swarms as you mention are generally the result of the swarming mania; but it is a little strange that they should get it so late in the season. Perhaps you have been having a honey-flow, and it is slowly tapering off. Is not this the case?]

THOSE MOSQUITO-HAWKS; HOW TO CATCH 'EM.

I see the friends have a very slight idea of the number of mosquito-hawks. Our Kansas and Texas friends will understand. They are not quite so bad as a small shower of grasshoppers. If I were going out to catch them I should want a net a mile long and one hundred yards deep, and two steam-balloons to carry it. Only one specie, the large green ones, catch bees.

W. J. DRUMRIGHT.

Sarasota, Fla., Sept. 6, 1887.

S. T. PETTIT'S MANNER OF HANDLING CROSS BEES.

Let me tell you and friend Doolittle (see page 681, GLEANINGS) what I use for sweetening sour-tempered or cross bees. I take a piece of wood, $\frac{1}{2}$ inch by one inch, and 14 inches long. On this I nail a piece of stiff wire cloth, whose meshes are about 6 to the inch. The piece is cut 6 by 8 inches, and is nailed the long way up and down the handle. Round the corners a little, and your instrument is ready for use. This cooler will hit your little annoyances every time without difficulty, as it does not blow the bee out of line when you strike, and is wide enough to take effect without taking aim.

S. T. PETTIT.

Belmont, Ont., Can., Sept. 20, 1887.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: *Sheer Off Silver Keys*, *The Giant-Killer*; or, *The Roby Family, Rescued from Egypt*, *Pilgrim's Progress*, and *Ten Nights in a Bar-Room*. We have also *Our Homes, Part I.*, and *Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

SAM PHILOSOPHIZING—A GREAT SCHEME.

ONE evening, as our two young mechanics sat together, planning about their work in their little factory, Sam suddenly jumped up from the porch floor where he had been sitting, and ejaculated, "I have got a big scheme in my head!"

"Well, let's have your scheme, whatever it is," said his companion.

"Did you ever think," said he with an air of a philosopher, "what a vast amount of power there is in wind?"

"Why, I have known it to blow down trees; and they say, that out in Kansas it has carried barns and houses into the air, and lifted little babies high above the ground and set 'em down carefully upon haystacks," replied Jimmy.

"Where did you see that about lifting babies up in the air, and letting them down upon haystacks?"

"Oh! I saw that once in a paper."

"At any rate," replied Sam, "whether the baby story is true or not, I think my new scheme is a *big one*. The other morning, just as I was getting up," continued Sam, "I saw the windmill revolving just as nice as could be, and there was not very much wind either. Just think of it! That machine we made is using a circle of only eight feet in diameter, and yet it runs our buzz-saw."

"Well, what of that?" said Jimmy.

"Why, just this," said Sam, with his eyes gazing up at the moon. "As I was saying when you interrupted me for the third or fourth time, that windmill of ours uses a circle only eight feet in diameter. We will suppose that a windmill ten feet furnishes just one horse-power."

"What is Sam trying to get through his head?" said Mary, his sister.

"Now, you just let me alone. When I get through with what I want to say, you

can talk all you want to; but I want the floor just now."

"Well, go on," said Jimmy. "We ain't stopping you."

"Let me see; what was I going to say?" said Sam, scratching his head. "Oh! as I was saying, our windmill uses a circle of only eight feet in diameter."

"For pity's sake, don't say that any more," remarked Mary.

"A windmill ten feet in diameter will give one horse-power, won't it? Now, suppose we should put a whole lot of windmills clear across our farm. My! what a power we could collect, couldn't we? I would put the windmills so that they would be about twelve feet apart from center to center, and our farm is just eighty rods across the south end of it. According to that, we could put —" and Sam began figuring. "We could put just 210 in a row. Allowing one horse-power for each windmill ten feet in diameter, we should have all together 210 horse-power. These windmills we would put about 25 feet high."

"Oh my, my!" replied Mary. "Sam's building castles in the air. Just you come here."

"You mean he's building windmills in the air," said Jimmy. "Oh, yes!"

Sam was so absorbed in his new scheme that he evidently did not hear them, but kept his eyes gazing intently on the moon, as though old Luna were revolving like a windmill.

"Who is going to furnish capital to carry out your great scheme?" said Mr. Green, who now suddenly appeared before them, as he was wont to do.

"Why, how did you know any thing about it?" said Sam.

"I heard Mary say something about castles in the air, and so I thought I would listen. There is no doubt that there is an immense power in wind; and if the comparatively small amount which passes over my farm could be properly utilized, it would run a large gristmill."

"Well, pa, why couldn't we do it?"

"How would you get the power all concentrated into one shaft? You know we have gusts of wind traveling. Some windmills would be going, while others in the line would stop; and if the whole line of windmills were belted to one shaft they would be apt to conflict with each other. Some would want to pull while others would feel like taking a rest for a while. Another objection to your scheme is the great expense, granting that you could overcome all other objections."

"But, pa, isn't there some way in which this vast amount of power could be stored up, and held as a reserve force, to be used whenever required?"

"There is only one way that I think of now," said his father. "After going to the enormous expense of a whole line of windmills across the farm, we should have to dig an immense reservoir upon neighbor Brown's hill over yonder," said he, pointing to a hill about 75 feet high. "I will assume that these windmills could pump water from some lake or river up into this large reservoir. At the

foot of the hill a large turbine water-wheel might be located, to be propelled by a large stream of water coming from this reservoir above. These windmills could pump water periodically, and are supposed to keep this reservoir on the average pretty nearly full. It is also to be assumed, that the mills would pump the water just as fast periodically as the turbine could use the water when the wheel is running the year round, propelling the machinery in an immense factory. Now, I declare," said Mr. Green, "I am afraid that my additions to your scheme would be pretty nearly as wild as your line of windmills. It seems too bad that we are not yet able to utilize the immense power we have in the wind during fall weather and spring. But inventive genius has never yet come anywhere near it. The one you propose, Sam, might be possible; but it would involve an enormous expense to get every thing ready, and the first cost would be rather more than would cover the expense of purchasing a steam-engine and running it every day for several years."

"But, pa, my windmill wouldn't cost any thing after it got a going. The windmills would board themselves and work for nothing."

"The reservoir would need to be kept in repair, so also would the windmills: I doubt if they would quite board themselves."

Sam was not yet quite ready to give up his pet scheme. As it was getting late Mrs. Green reminded Sam and Jimmie that it was their bed time. They all left the porch, and Jimmie started for home.

JUVENILE LETTER-BOX.

FROM ONE WHOSE PAPA DOES NOT KEEP BEES.

My pa does not keep bees, but my uncle has some. I like to see bees swarm. It is a nice thing to keep bees. My brother helped a man take care of bees last summer. I have seen them extract honey. I have a sister who weighs 200 lbs. She is 13 years old.

MILLIE SWARTWOOD.

Tracy Creek, N. Y.

KATIE'S LETTER.

I received Ten Nights in a Bar-Room, and have read it through. One of my neighbors has a little baby boy with blue eyes. I should like very much to see Huber and your carp-pond. My father has about 300 bushels of apples. I go to school. Our schoolhouse is the nearest house to my home. On the 26th of August, at night, I milked 16 cows—the most I ever milked at once. Don't you think that is pretty well for a girl 13 years old? I have a pet sheep. Her name is Nanny. I have five hens and chickens.

KATIE BRIGGS.

Deposit, N. Y.

To be sure, Katie, 16 cows is a pretty big task for a girl 13 years old. But are you sure that the cows were all milked *well*? It seems to me it would require more strength than such a child usually possesses; and if I were your papa I don't believe I would allow my little girl to work so hard, even if she were ambitious enough to want to. I

am very glad you love the cows and the sheep and the chickens, Katie.

A LITTLE GIRL TELLS HOW HER MAMMA MANAGES BEES.

We have 30 hives of bees. Mamma works in them all by herself, with a boy to carry the heavy frames of honey and bee-boxes. We have our bees three and four story high in the summer, and in the winter mamma puts them down to one box; if they are very strong, two boxes. By the last of January the strong hives will have brood, then we build them up again. Mamma raised ten queens, but they all turned out to be hybrids except two. She sold three to a gentleman in the country, who keeps bees. When she opened the hive to cage them, one queen flew out in the air. She flew about a little while, then she came right back to the hive. About two weeks ago I went into the garden and found a swarm of bees hanging on a low bush. Mamma put some frames of honey in a box, and shook them in it; but they came out and flew all around the other hives, and were killed.

ERNESTINE PLETTINGER, age 8.

Bayou Sara, La.

THE JEWELER'S TRADE.

I am a boy just commenced in bee-keeping. I ordered one of your A B C books not long since, and I like it very much; but as my bees require but little time, I want to learn how to repair watches. Understanding from one of your catalogues that you are a jeweler, please answer the following questions:

Is there any book on the subject that I could nearly learn the trade from by careful study? I am afflicted with rheumatism so I can get from home but very little, and I can work only with light work. Where can I get such a book? where could I get tools and supplies? and what would they cost, the fewest needed? I have had some experience in clockwork. I made one, calendar and all, complete.

J. W. HOUSE.

Mountain Meadow, Ala., Sept. 8, 1887.

My young friend, I am sorry you didn't tell me your age, for then I should have known better what advice to give you. There are books published on clock and watch making, but I don't remember any of them now that I think would be of very much advantage to you. There are two or three monthly journals that would be quite a help. The *Jeweler's Circular*, published in New York, is perhaps as good as any of them. I would advise you to visit the best jeweler's establishment in your nearest good-sized city. They will be glad to furnish you with tools and supplies, and you can probably make arrangements with them to do very difficult jobs that you can not do very well at home. If you have made a calendar clock, I should say you are pretty well advanced already. A love of machinery, and natural skill and tact, are the great essentials toward becoming an expert watch and clock repairer; but, my dear young friend, I have found that strict honesty and integrity are worth more than even skill and ingenuity, especially as there is so great a chance in this business to be tricky and dishonest. Try to do your work right in God's sight, and you will meet with abundant success and favor in the sight of man.

OUR HOMES.

Let all the nations be gathered together, and let the people be assembled. . . . Ye are my witnesses, saith the Lord, and my servant whom I have chosen.—ISA. 43: 9, 10.

IT seems strange to a beginner in the Christian life, that the Savior should need such poor Christians as we are to testify for him; and it often seems stranger still for a young convert to find out that he, with his hesitating and blundering speech, can say a word or two that will strengthen and encourage and lift up even old veterans in the cause of Christ. But I believe every veteran in the service of the Lord can testify that even the pastor of the church himself has no power or eloquence to move hearts like the simple words of a soul newly born into the kingdom of Christ. The words at the head of our talk, "Ye are my witnesses," abundantly prove themselves; and it seems strange, too, that there is no progress in the Christian life unless each and every one takes up the cross and testifies before his fellow-men. It may be that there are, occasionally, individuals who don't seem called upon to speak in public; at least, there are some who declare they don't receive a blessing in taking part in prayer-meetings and other religious exercises; but these are comparatively few. My experience with new converts has been, that, almost without exception, they feel strengthened and encouraged and inspired to push on and fight the good fight, by taking part in the prayer-meetings or other assemblies of Christian worshipers. Over and over again have I seen a dull meeting transformed into one full of life and energy and vigor by some simple testimony from one who is just getting a glimpse, apparently, of the beauties of a Christian life—some one who, it was quite evident, was obliged to make a great effort to indicate to the world that he was desirous of being considered on the Lord's side. It is a cross, I know, to rise up before the world and declare for the first time that you want to be counted among Christ's followers; and it is also quite a cross for some who are well along in years, and well along in Christ's service, to bear testimony. Now, friends, you may think it a little singular; but although I take some public part in Christian work every day of my life, and almost invariably speak more or less at our prayer-meetings twice a week, yet for all this my heart often beats violently—sometimes so it makes it hard for me to speak when I rise to plead the cause of the Master. But I am glad to be able to say, that when I sit down it is always with a feeling of peace and faith and trust in my heart that I didn't feel before rising. If my remarks have been made with a prayer that they may reach some heart, there is a feeling afterward something like "Well done, good and faithful servant." If, however, I yielded to the feeling that I have talked enough in former times, or don't need to say *any thing* during that special meeting, I invariably go away with less faith in Christ, and along with it less faith in my fellow-

men, and a cold dead sort of Christianity in my heart.

In response to my invitation in Our Neighbors, in the last issue, quite a number have sent in testimony to the power of Christ to bring peace into the hearts of men; still, a few have objected to having their letters published. I think these few have made a mistake, but of course I have no right to publish them when desired not to do so. One of the first and easiest things for a young Christian to do is to rise up and state his feelings and wishes, and ask the prayers of the assembled brothers and sisters; and sometimes the simple words, "Pray for me," and nothing else, bring peace and hope and joy to a hungering soul. It indicates, if nothing more, that the speaker is hungering and thirsting for righteousness; and any expression to this effect seems to bring peace and a fulfillment of the promise.

Our first testimony comes from one in middle age; and yet, we judge from the letter, it is a testimony from *two* whose faith has been brightened and strengthened by the testimonies already given in these pages.

A HUSBAND AND WIFE WHO FEEL IT A PRIVILEGE TO GIVE IN THEIR TESTIMONY.

Friend Root:—I have long felt you were a friend to me, just in the knowledge that you were a Christian, and more particularly in the help you have afforded us in your Home talks. Indeed, my husband seems to think your manner of treating *everybody* as our neighbor was largely the cause of his trying to seek the right way of living. We are now in middle age, enjoying a Christian life, and trying to live void of offense toward both God and man. We have often met those same difficulties which we are so plainly illustrated in your Home talks. Sometimes when the world seems harsh, and the people still harsher, it is a great comfort to take the good Book and turn to "Wo unto you when all men shall speak well of you;" and, "Blessed are they that are persecuted for righteousness' sake," and many more such passages that cheer the heart. I started out to tell you, that if it does you so much good to think you had helped a boy to a higher life, you surely will be encouraged to know you are helping *two* in middle life who have been trying to serve the Lord for fifteen years. As soon as GLEANINGS is brought home, Mr. Ross will say, "Now, wife, let's see what brother Root has to say to *us* in this issue;" and we always find something helpful in every number.

I am afraid I shall write too long a letter. I will tell you all about our bees before long. I do not ask you to print this. I shall be glad if you can read it, and understand that you are helping us, too, to lay up treasures in heaven. Much sickness has greatly impaired my eyesight; but I thank God I have a voice to praise my heavenly Father, and a heart attuned to his praises. Mrs. E. L. Ross.

Arlington, Ill., Oct. 5, 1887.

Dear sister, we are glad to receive your testimony; and although you have not asked us to print it, we feel sure you are willing, providing it will strengthen and encourage others, which we know it must do.

The next is from one of our younger friends.

TESTIMONY FROM A BOY 18 YEARS OF AGE.

Mr. Root:—You ask, "Is there another soul among

the readers of GLEANINGS that had been lately moved to give himself to the Master?" I answer, yes. I have also, by faith, received physical strength sufficient to attend school four miles from home.

WM. FISK, age 18.

Addison, Mich., Oct. 10, 1887.

May the Lord bless you, brother William. I am glad to know, too, that you have found godliness profitable in the matters of everyday life. When I know that a boy in his teens is making a subject of prayer of something that he wishes, I feel perfectly satisfied that God will give him just that thing, or something a great deal better; for we poor mortals don't always, even when we pray, know what is best for us. I suppose, William, your health has been poor; but notwithstanding, you have been enabled to get an education—an education to be used, doubtless, in the service of the Master, and therefore you have very properly been asking God to guide you and help you in your physical health, and your prayer has been answered. May the Lord be praised for this brief, simple testimony!

The next letter was a surprise to myself, and perhaps it will be to the readers of GLEANINGS also.

TESTIMONY FROM ONE WHO HAS BEEN REACHED
BY THE HOME PAPERS, EVEN IN THE
STATE PRISON.

Mr. Root:—I have been reading your journal, especially your letters, and they have proved of much benefit to me in a spiritual sense. I write this confession that it may encourage you to still continue in so good a work. I am a young man, and, like some others, have fallen—a victim to temptation. I am incarcerated in the State prison, in consequence of my folly. I thank God that he has opened my eyes; that he has lifted the scales; that I am now enabled to see through the flimsy veil that Satan ever holds before the eyes that are already blinded in regard to their own spiritual welfare. I have made a resolution (and with God's help I will keep it) to serve God all the rest of my life. Oh what a blessing it is to have the privilege of serving God! How few there are who truly understand the significance of the term! or, in other words, how few there are who have faith sufficient to enable them to perceive the spiritual advantages gained in serving God faithfully! Now, brother Root, I, as a beginner, ask you to pray for me. May God bless you, and give you spiritual strength. I remain your brother in Christ Jesus our Lord. I invite brothers and sisters to write me encouraging letters.

ELSIE MYRTLE.

Box 340, Jeffersonville, Ind., Oct. 9, 1887.

Dear brother, we thank the Lord that he has moved your heart to come out fairly and squarely before the world. Some of us feel, as we live here in our homes, catching the free sunshine and free air, that it is a trial for us to humble our pride to the extent of standing up and confessing Christ. In view of this, how great must be the cross for a brother when he stands up and tells us he is even now an inmate of the penitentiary! Notice now the transforming effect of Christ's love in the heart. Since his new birth he has forgotten his hostility to the world. You will notice in the above letter, that there is not a word of censure or blame

toward anybody; and I tell you, friends, I know by experience that this is a rare state of mind to find in a prisoner. The natural attitude is severe and harsh criticism on the outside world, and especially against the officers of the law. This friend takes the whole blame upon himself. The scales have fallen from his eyes, and he has a view of himself just as he stands before God, and he has found blessings inside of those penitentiary walls. He asks us to pray for him.

What heart is there among the readers of GLEANINGS that can resist the impulse of saying inwardly, "God help our poor imprisoned brother"? But, my friends, while we breathe this prayer let us also lift up our hearts in praise that God has given a glimpse, even, of liberty—yes, liberty right where he is now, that he never knew before, perhaps in the outer world—the liberty that Christ gives to his followers truly; for no good thing is withheld from those who love the Lord. Our brother Elsie, in his present attitude of heart, wants nothing but what is right and pure and holy in the sight of God, and therefore all his wants are supplied. I have no hesitation in saying, that if he continues in this attitude of mind, the prison doors will soon be opened. God knows the heart, and he knows just the exact moment when it is safe to break the shackles. Years ago I once told a friend of mine in our Medina jail, that God would open his prison door the moment he saw it was safe for him to do so. Well, the prisoner astonished the court and all assembled, by so full and frank a confession, taking every particle of blame upon himself, and shouldering it like a young hero, that even the judge himself jumped up in astonishment. "Gentlemen," said he, "we send our Ohio boys to the penitentiary because it is for their own good. Now, this boy may have been bad; in fact, from his own confession he has been very bad; but I will take the responsibility myself of saying that his own good does not demand that he be sent to the penitentiary."

The above may not be the exact words of the judge, but they were the words in substance. The boy who stood before him had given his heart to Christ wholly, and without reserve. He had, before this scene in the court-room, knelt with me on the stone floor of the jail, and promised God to go to the penitentiary or anywhere else, humbly, and with thanksgiving in his heart, if it were the Lord's will he should do so. The judges of our courts, and the officers of the law, know the ring of the genuine metal of Christianity, and the world knows it. The humble, penitent child of God is safe anywhere in this broad universe—safe in life, safe in the penitentiary, and safe in death. Now, friends, our brother has asked us to write him encouraging letters, and I hardly need tell you that kind words and encouraging letters have lifted many a poor soul from death and ruin, to life and immortality. Shall our brother's request be passed by unheeded?

After the above was given to the composers, the following came to hand:

Uncle Amos:—Perhaps you will be somewhat surprised to learn that your journal finds its way inside

inside of these prison-walls. I met a man here by the name of Barnett, who works in the same department with me. He talked to me about what business would be best to take up with after going out of here. We talked of almost every thing. One day I suggested the bee-business, and he was all taken up with it. He has some means (while I have nothing); and when I told him of GLEANINGS he sent for it, and it is to this man that I and my friend Myrtle are indebted for the privilege of reading it. Friend Myrtle works with me, and we are both trying to do right. We propose that, when we go out from here, with God's help, we will show to the world that a person can go out of penitentiary and still be a man. This proposed reform in us has been and is being greatly strengthened through your writings, which we appreciate and look forward to with anxiety, each number. We have taken the liberty of writing these letters to you, from your request in GLEANINGS for Oct. 1. You wonder if anybody else has been benefited by your writings besides your young friend in Florida. We answer, yes, even we two, cast out and degraded as we are. Through the influence of GLEANINGS, I quit the use of tobacco 1½ years ago, although it cost me a great effort. I commenced using it when only about seven years old. I don't want a smoker—that was not my object.

It seems pretty hard for one so young as I (only a boy, as it were), to be shut up in this old bastille, deprived of all that is near and dear to me, and losing four years of the best of my life. Yet I am glad I am here; that is, I thank God from the bottom of my heart that he caused me to be cast behind these prison-walls. It was the only way there was to check me in my wild headlong speed to destruction. Now, kind friend, perhaps my simple letter will be of no interest to you; but when you go to teach your Sabbath-school, tell them of me; hold me up as an example, that they may profit by my downfall. Tell them and all others how I left my home and friends, not because of harsh and unkind treatment—no, but because I was treated too well, with too much kindness. They tried to make me a good boy, and to love and serve my God. When I was fourteen years old I ran away from home. I soon saw my mistake; but pride prevented me from returning, and Satan urged me on to resist the pleadings of that still small voice (God's voice)—so I went on, determined to become renowned in one way or another; and here I am now. If there are any such boys in your town, hold me up before them as an example, that they may take warning.

FRANK C.

Jeffersonville, Ind., Box 340, Oct. 10, 1887.

May God be praised, friend Frank, that you remember GLEANINGS when in prison; and since you suggest it, I will gladly send it, free of charge, to any inmate of any of the prisons in our land. I know how those shut up from outdoor amusements take hold of the subject of bees, gardening, etc.; and if my poor efforts can interest them in these wholesome employments, I shall be only too glad to send it. Remember, Frank, the promise is to those who *endure to the end*. Don't get back, and don't listen any more to the tempter. Hold fast to the strong arm of Him who died for such as we are.

We will now conclude our testimonies for this time with some extracts from a brother who is laboring in China for Christ's cause:

One obstacle we have to contend with in China, and especially Southern China, is malaria. Different persons differ very much in their susceptibility to malarial poison. Some enjoy years of almost unbroken good health; others begin to ail as soon as they land, and in a year or so are compelled to return home. The majority enjoy just passable health, and can't work as they could in a better climate.

There is a striking analogy between temptation and malaria, or miasma. Such diseases as ague, cholera, typhoid fever, lung fever, etc., are caused by germs which infect the system, but there must also be an antecedent state of the system which favors the development of these germs. A devoted worker, a sister of J. N. Stearns, spent nearly thirty years in Foochow, working hard, and often encountering all the filth of the poorer Chinese dwellings. But four years ago in June she had been so well received among her poor neighbors that she continued her visits into the hot weather; and one warm day when she had visited and talked till nearly exhausted, in response to a pressing invitation she visited a filthy dwelling which was infected with fever-germs. She took the fever and died of it.

Foochow is sometimes visited by the cholera; but of the hundreds of thousands who eat the same food, and breathe the same air, only a small proportion have the cholera. The gastric juice of a healthy stomach will kill the germs; but any thing which enfeebles the action of the stomach opens the way for them to attack the system.

A few years ago, during the prevalence here of cholera, there was an idolatrous procession to propitiate the idols. The men who carried about the idols in the procession were feasted with *pork* and *wine*, and in a few hours 16 of them died of cholera.

Temptation works in much the same way. There is a germ of evil, a suggestion, or an impulse toward the wrong; but there must also be a receptivity in the mind.

Again, the Chinese Christians are, of course, imperfect, and in particular they may bring with them from heathenism habits of hypocritical seeming, and low ideas of truthfulness. Only too probably, a few of them are nothing but hypocrites, and these latter may for a time appear better than the simple and sincere ones. This state of things gives the Adversary special facilities for suggesting plausible but unjust doubts of the sincerity of all. A man whom I have learned to love and trust, deceives me about something, or I detect in him tricks of Pharisaical seeming, and at once cruel doubts of him and others like him are thrust into my mind. I am tempted to say in my haste, "All men are liars." This is a peculiarly trying experience, because it is so important that we and they love and trust each other; but misplaced trust may also lead to disastrous consequences, and the golden mean of proper trust and distrust is often hard to discern. On one hand the Chinese despise gullibility, and on the other hand they are habitually distrustful; and if we set them the example, they will only too readily follow it.

The Lord does help us in such trials. "Resist the devil, and he will flee from you," is a blessed truth. I have had temptations, with which I had wrestled for hours, dispelled in an instant by a text of Scripture. The sword of the Spirit is the weapon with which to resist the devil.

J. E. WALKER.

Foochow, China, Sept. 1, 1887.

TOBACCO COLUMN.

THE TOBACCO EVIL.

DEAR FRIEND ROOT:—I say "dear friend," for I feel that you are such to all. A friend in need is a friend indeed. As you take so much interest in reform on the tobacco sin, you certainly deserve the help and good will of all. It is a fact, that tobacco is ruining many of our young men—yes, little boys; and how sad to see church-going people use and sell the deathly weed. No wonder our dear Savior's cause prospers so indifferently. I often hear people pray, and ask God to make them as himself, and at the same time roll a cud of tobacco under their tongue as a sweet morsel. I once attended a cottage, or neighborhood meeting, where the leader and a number of others had a rousing smoke in a back room before opening the meeting. There we all were, little boys and girls, there to do good, and to show the need of a better life. As I was a new comer there, they requested me to lead the meeting. After some excuses I did the best I could; but how the thoughts of such an unclean thing as was mingled with the spirit loomed up in my mind! Well, I decided never to be caught in such an abomination, as it seemed to me; for how very glad the young are to tell us they chew and smoke because such a one does, and she or he is a good person. These are the very ones that are doing the greatest harm instead of good; and the better they seem to be and indulge in the worse than useless thing, the more poor innocent young they are leading into ruin. What is the use of talking down rum, when one is fairly steeped in such a soul and body destroyer as tobacco is? How many are made poor by it! How many die of heart disease by its use! and, above all, how many are led on, from picking up the remains of an old cigar that some high-toned (I will say selfish) person dropped! I work so I can see more of these evils than many others, as I cut and file saws. I have all classes to deal with. I have had men cheat me out of two cents, because they hadn't it, and would smoke or chew all the time—yes, and get up nights, and try to soothe the grief and sorrow that it had already brought to them. How many children suffer greatly with cold, and mother dying with grief, just on account of this awful weed! They say, rum will bring one to where he will sell his clothes for it; so will tobacco. I have seen so-called men almost crazy for want of a chew. I have seen men on the dying-bed, when they would say, "Tobacco has prematurely laid me here, and I must go. If I had been warned when young I should no doubt be well. I have thrown away enough to buy the best farm in town." Oh! isn't it time that law should step in? I am very sure that the world is growing weaker by it. What would a person think to see one take food and treat it as tobacco—spit out the juice, then the cud; yes, and nine times out of ten declare they wished they never indulged in such a thing, as many do with tobacco. But they often tell us tobacco is fashionable—yes, and fashion is ruining the people. Oh that ministers would put more stress on such things! The poor Salvation Army is disliked by many because they denounce the weed. But they are converting thousands from it, and the army is being wonderfully blessed. I once asked a poor little seven-year-old boy if his father knew he chew-

ed. "Oh, yes! and if he catches me at it he licks me—ain't it a shame?" What would the law do with us if we should oblige our children to eat food so very sickening and deathly as tobacco? A very severe punishment would be the result, would it not?

May the Lord bless you, and he does, I know. Who ever gave away so much as you have, in the way of smokers, for the good of mankind? This life is too short to be thrown away; for if it is, the one hereafter is sure to be. How much pleasure I receive by reading GLEANINGS! I know the Lord is dearer to me on that account. Let's do all the good we can while the days are passing by.

E. P. CHURCHILL.

Hallowell, Maine, June, 1887.

My husband has quit the use of tobacco. Will you please send him a smoker. We are both church-members, trying to give a cup of cold water in the name of a disciple. I trust he will never use it again. If he does I will pay you for the smoker.

MRS. LYDIA BEAN.

North Street, Mich., Aug. 6, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

BUTTER-DISHES AS FEEDERS; FURTHER TESTS MADE WITH THEM.

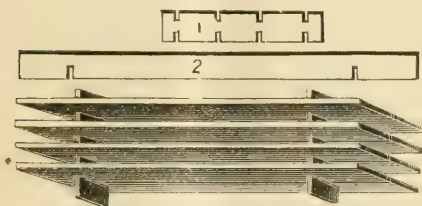
WE have now fed two barrels of sugar in the wooden butter-dish feeders as described on page 751 of last issue. We have been using them constantly ever since, and I have no occasion to modify any thing I said in their favor; in fact, they have given better satisfaction than I had really anticipated. They wear well and hold their shape well, and every drop of feed is taken from them by the bees. No bees are drowned. Often when we pour in the syrup we find the butter-dish filled full of bees; but we pour the syrup over them just the same, and scarcely a bee is killed, even though 200 or 300 of them be completely covered with the syrup. In consequence of the convexity of the bottom of the butter-dish it is possible to tilt it so that it will be perfectly level, even though burr-combs stick up so as to make it very uneven for a common Simplicity feeder. Taking advantage of this fact, we are enabled to fill them level full. Moreover, these wooden receptacles do not occupy on the enameled sheet, or on whatever they are resting, more than a square inch of surface. They can thus be set right down in the midst of a lot of bees; and before you can get the syrup into the feeder the few bees that may be under the base of the feeder will crawl out from under. The pie-plates, upon a further test, do not work nearly so well, nor are they as durable as the butter-dishes, although the latter cost only half the price. The former, I should judge, are pressed into shape, as, after they have been in use for a while, they flatten out so as to be no longer a receptacle of liquid.

I give place to the following card as confirmatory of all I have said, both in the previous issue and in the present number:

In last issue of GLEANINGS, you advise the use of butter-trays for feeders. Yes, they are the very thing. I bought a nest of 50 yesterday, and put them into use last evening, and this morning every drop was taken, and no float is needed—not a bee drowned, either. I gave them feed previous to this, in earthenware and tin vessels, but few bees would touch it. When poured out in the wooden trays, they cleaned it up immediately.

Clarksburg, Mo., Oct. 7, 1887. C. H. McFADDEN.

One point I want to emphasize in the McFadden letter above is, that during cool or frosty weather the bees will take food from these butter-dishes when they will ignore all metal or earthenware feeders.



JONES FEEDER-FLOATS.

The above cut illustrates the D. A. Jones feeder-floats, Figs. 1 and 2 being separate pieces of which it is composed, and Fig. 3 the whole after being put together. To make Fig. 3, it takes two pieces like Fig. 1, and eight pieces of Fig. 2. You observe the former has eight saw-cuts, arranged in pairs and opposite to each other. The latter has two saw-cuts, and on one side only. To put together, we pick up first one piece of No. 1 and then a strip of No. 2, crowding one of the saw-cuts of the latter into a corresponding saw-cut of the former. This makes two strips at right angles to each other. In like manner, crowd strips of No. 2 into the remaining saw-cuts of No. 1 on one side. Another strip of No. 1 is taken up and crowded into the respective saw-cuts left in the strips of No. 2. Into the opposite side of the two strips No. 1, four other pieces of No. 2 are fitted so as to meet the corresponding strips on the opposite side. When done we have a feeder-float like Fig. 3, having four partitions, as it were, spaced equally, and held together by two strips of No. 1. You observe that it takes advantage of a well-known principle in mechanics, dispensing with the use of nails or other fastenings. Mr. Jones writes that the strips are made of $\frac{3}{4}$ -inch culled lumber, about $\frac{1}{2}$ of an inch thick.

When I first put it together I thought it was a capital thing, and would answer its purpose as a feeder-float splendidly; but upon actual trial I found it did not work as well in practice as in theory. It is designed to sit in a square tin pan (for instance, a bread-pan), and should stand perpendicularly instead of horizontally, as our engravers have represented it. Instead of sinking down into the syrup it will float directly on the surface. The same thing could be used very nicely in a plain feeding-box, but would require to be fastened at the bottom.

TACKS FOR RECORDING THE CONDITION OF HIVES.

Last year, when we were examining our colonies preparatory to feeding, we carried with us a piece of red chalk and marked on the cover of the hive, as nearly as we could estimate, the number of pounds of syrup which the hive would require to be fed for winter. This chalk did very well for once feeding; but as we fed only about 2 lbs. of syrup to each at a feed, we found that, after having given a colony this amount we could not erase the chalk. For a want of something better, we put a little stone on top of the hive every time we had given it one feed; but those little stones occasionally got lost, or blown off by the wind.

On reading an article recently from the pen of somebody whose name I do not remember, I noticed that the writer recommended the use of tacks, said tacks being arranged on the cover in such a manner as to indicate to himself the condition of the colony and its needs. While the slate tablets which we use answer the ordinary purposes of queen-rearing and the like, yet at a distance it is impossible to tell at a glance among several rows of hives those particular colonies which require attention. I told one of the boys one day, to get a handful of tacks and use a system of tacking which would be intelligible to himself. The plan which he adopted I can best illustrate by taking you along with him while he feeds.

Here is a colony which needs about 10 lbs. more stores. He decides to feed about 2 lbs. at a feed. He therefore picks out five tacks and sticks them with his thumb into the ridge-board of the cover of the hive. Here is another colony which requires only about four or five pounds. He takes two tacks and sticks them up in the hive-cover as before described. With his pocket well supplied with these little signs he passes through the whole apiary, sticking them in to indicate the amount of feeding required in this or that colony. If he discovers a hive which has enough natural stores, of course he will put no tacks in the cover. In this manner we will suppose that he has been through the whole apiary. He next goes to the house apiary and takes an armful of butter-dishes (perhaps 100), and, taking a bird's-eye view, he can see, by the tacks sticking in the hives, from a considerable distance those colonies needing feeders. A colony near him has on its cover five tacks. He decides to feed it in a couple of feeds, and puts two butter-dishes on the hive. So he goes on through the apiary, distributing the butter-dishes as called for by the tacks. You will observe that he does not need to pass by each hive to scan the slate or the number on the hive. He simply picks out hives scattered here and there, making a bee-line for each. The evening before, he has made up a batch of syrup. With two feeding-cans filled he walks straight to those hives distinguished from the others by the tack. On approaching the hive he raises the cover and slips in the feeders on top of the enameled cloth, tilting them as above described until he gets them as nearly

level as possible. He then pours in the feed. If, after pouring in the syrup, they should prove not to be level, he tilts them again until they are, after which he fills them level full of syrup. We will suppose that the hive in question had five tacks, with two feeders in the hive, each holding about one pound of syrup. He draws out two of the tacks and pushes them into the edge of the hive. In like manner he passes on through all of the colonies. The next time he passes around with the feed the remaining tack in the ridge-boards will tell the amount of syrup which is to be fed, and the two tacks in the edge of the hive show the amount which he has already fed.

You observe that the beauty of this system is, that the condition of the hive is told at a glance 50 or 100 feet away, and I can assure you that it is a pleasure to walk directly to the hive which is to be fed, rather than to hunt around over useless ground, especially where the next colony is needing your attention.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 15, 1887.

Whosoever, therefore, shall be ashamed of me and of my words, in this adulterous and sinful generation, of him also shall the Son of man be ashamed, when he cometh in the glory of his Father with the holy angels. — MARK 8: 38.

BEING SURE A COLONY IS QUEENLESS.

NEIGHBOR H. suggests that he feels sure a great many imagine their colonies are queenless because they don't find brood or eggs in October. They accordingly send for a queen. The queen, of course, is killed; and when the colony shows no different kind of bees in the spring, our customer writes back that we sent him a black queen instead of an Italian. See editorial in regard to this matter in our last issue.

UNTESTED QUEENS.

OUR stock for the season is exhausted, and those in the South or elsewhere, having any to spare, would do well to advertise them. I would suggest, that in your advertisements you say, "On hand, ready for shipment." It is not advisable, nor is it worth while, to send them to us to be remailed elsewhere. There will probably be considerable demand for them through this month and the next; and now is the time for our friends further South to take care of this branch of our industry.

ASTERS AND GOLDENRODS.

REPORTS come from many different points, that the bees are getting much honey from these two fall plants, especially the aster, and many samples are sent in for us to name. See cuts and description in the A B C book. Wherever you find bees

working on a plant three or four feet high, found in the fields at this season of the year, you may be pretty sure it is one of the large family of asters. There are forty or fifty varieties, and they produce different-colored blossoms, with petals standing out like the rays of a star—hence the name.

THE WASHBURN ROTARY ENGINE.

ALTHOUGH Ernest has given this a pretty extended notice on another page, it seems to me he has touched only lightly on the great point concerning bee-keepers. It is this: By making the engine a part of the mandrel that holds the buzz-saw, we throw away belting, line shafting, and their attendant counter-shafts, and in their place use only a slender steam pipe. Nothing revolves but the buzz-saw. In fact, a shop full of machinery would have no shafting or belting at all. Nothing moves but the tools that do the work, and these are all stopped and started by turning a valve that admits steam to each separate little engine.

SIX WEEKS DAY AND SIX WEEKS NIGHT.

WHEN friend Young was here we asked him a great number of questions about the part of his country where they have no night at one season of the year and no day at another season, for a period of about six weeks. I asked him if they had towns and cities where they had this great big night. "Oh, yes!" replied he. Then came the question, "But, friend Young, how in the world do the people get around and attend to business during this long night time?" "Why, bless your heart, sir, they keep it light by burning *American coal oil*." And then he had one of his big laughs at my expense. They don't have any railroads that run up to this strange country, but you can go partly there by railway and the rest by steamer. I suggested that it would be a grand place to start greenhouses, where we could have perpetual sunshine on the lettuce; but he couldn't tell me that anybody had ever explored this industry. May be there wouldn't be any market for the lettuce. He says the northern lights contribute greatly in the absence of daylight; and the displays they give during these six weeks are beyond the power of language to describe.

GIVING THE NAME OF YOUR COUNTY AS WELL AS POSTOFFICE AND STATE.

I HOPE the friends will be patient with us for bringing up this matter so many times; but I want to tell you that it has cost me in hard cash the sum of \$131.94 on one single transaction, for having supplied the name of the county when our customer neglected to give it. We went to Bradstreet, our postal guides, and our railroad guides, to be sure we had made no mistake. You may ask why we were out this amount of cash when we so distinctly state that we will not be responsible where the name of the county is not given. I stood this loss because I felt sorry for our customer; and the amount I have mentioned above was exactly *half* of the whole amount that we were both out of pocket by the blunder. For further particulars, see page 430, issue for June 1. It was on a steam-engine heavy enough to make a carload; and getting the wrong county sent it to the northern part of the great State of Michigan. Now, can you blame me for declaring very positively, that, unless you give the county in which your station is located, as well as that of your postoffice, you will have to bear all losses resulting from this omission? As a great

many of the friends have railroad stations in different counties from which their postoffice is, it is absolutely necessary that you say, in telling us where goods are to be shipped, what the county is, even if you have already told us in what county your postoffice is. No doubt our postal guides, railroad guides, and Bradstreet, sometimes make mistakes in the name of counties; but we can not be responsible for *their* mistakes. Do you not see it? We do the best we possibly can, where the friends *will not* tell the county where goods are to be shipped; and after having done our best we can not pay damages.

OBITUARY.

We are pained to notice the death of Martin Broers, at Uvalde, Texas, Oct. 1, 1887, aged 35 years and 9 months. Friend B. has contributed considerable to these pages in times past, as many of the friends may remember, and also gave us quite a valuable suggestion in regard to reversible frames at the time we devised the wire arrangement we now use. The following from Mrs. B. tells us the sad news:

Dear Friend:—This notice inclosed will tell you the story. We ask for words of comfort and consolation in our bereavement.

MRS. MARTIN BROERS.

Gonzales, Tex., Oct. 9, 1887.

We are also pained to note the death of another old friend and contributor, J. D. Enas, Napa, Cal. An advertisement by Mrs. E., in another column, tells us the sad news.

SPECIAL NOTICES.

GRAPEVINES AND BASSWOOD-TREES.

Now is the time to plant these out, and it can be done safely at any time before the ground is frozen too hard to get them out easily. For prices, see our fall catalogue, mailed on application.

HONEY-JUMBLES.

We have just received another ten-barrel lot of honey-jumbles; and if our readers had learned to appreciate them as our townspeople do, we should need another ten barrels within a few weeks. We can mail you a few samples in a 1-lb. section carton for 10 cts., postpaid. Or we can send them with other goods at 15 cts. per lb. for less than 10 lbs.; for 10 lbs. or more, and less than 1 bbl., 13 cts. per lb.; by the barrel of about 50 lbs., 11½ cts. per lb.

TWENTY-FIVE GROSS OF BUCKEYE SASH-LOCKS.

Since we first began selling these locks we have disposed of thirty gross, because of their popularity. Just a few days ago we received 25 gross from the factory. By buying so many we are able to reduce the price in quantity a little. Prices are 5 cts. each, 50 cts. per doz., or \$4.00 per 100. By mail, 3 cts. each, or 30 cts. per doz. extra. Nickel-plated ones, 1 cent more than above. For further particulars, see our advertisement on the cover.

DISCOUNT ON GOODS BOUGHT THIS FALL FOR NEXT SEASON'S USE.

Until Nov. 1, we will give a discount of *ten per cent* on goods strictly for next season's use, except the following: Machinery of all kinds for manufacturing; all tin and glass honey-receptacles; tin plate, and all counter goods. On Simplicity, portico, and chaff hives, we can give only *five per cent*. The principal goods included under the ten per cent discount are foundation, frames, sections, zinc, extractors, and comb-foundation machines. Remember, friends, to get this discount you must send

cash with your order, and you must specify what goods are for next season's use. After Nov. 1, discount will be reduced to 8 per cent.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfd

AGENTS Illustrated circular free of **Two New Books**, and proof that \$100 a month is made selling our new edition of **Mother, Home and Heaven**, 180,000 sold. Edited by T. L. Cuyler, D. D. \$2.75; also, **10,000 Curiosities of the Bible**. Introduction by J. H. Vincent, D. D. Illustrated, \$2. 20-21d **E. B. TREAT**, 771 Broadway, N. Y.

FOR SALE IN CALIFORNIA!

On account of the death of the proprietor, J. D. Enas' ranch of 240 acres, part in fruit, 80 stands of bees, steam machinery for the manufacture of supplies, a well-established business; land will be sold in 40 or 80 acre tracts. Stock, farming implements, and a large stock of aparian supplies. For particulars address **MRS. J. D. ENAS**, Box 306, Napa City, Cal.

FOR SALE!

100 colonies of bees, Italians, blacks, and hybrids; one Barnes foot-power saw; one 10-in. Root fan, mill, extractors, smokers, etc. A bargain to cash purchaser. Address **H. B. SHAW**, 20d Gum Ridge, Jeff. Co., Miss.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

15 FINE YOUNG ITALIAN QUEENS for sale at once; tested, \$1.00 each; untested, 65 cents each. A few dark hybrid queens at 30 cents each. **D. G. EDMISTON**, Adrian, Len. Co., Mich.

If you Wish to Obtain the Highest Price for Honey

THIS SEASON, WRITE TO HEADQUARTERS,

F. G. STROHMMEYER & CO.,

Wholesale Honey Merchants, 122 Water St., New York.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have five hybrid queens of this year's raising, for sale at 25 cents each. **J. H. JOHNSON**, Middaghs, Northampton Co., Pa.

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; C. H. Green, Waukesha, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas, W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unaltered testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,
3utfd Hamilton, Hancock Co., Illinois.

W. Z. HUTCHINSON,

ROGERSVILLE, GENESEE CO., MICH.,

Has published a neat little book of 45 pages, entitled "The Production of Comb Honey." Its distinctive feature is the thorough manner in which it treats of the use and non-use of foundation. Many other points are, however, touched upon. For instance, it tells how to make the most out of unfinished sections, and how to winter bees with the least expense, and bring them through to the honey harvest in the best possible shape.

Price of book, 25 cents. Stamps taken, either U. S. or Canadian.



DALY HAMMERLESS. DALY THREE BARREL.
MANHATTAN HAMMERLESS. PIEPER BREECH LOADERS.
Send for Catalogue of Specialties.
SCHOVERLING, DALY & GALES,
84 and 86 Chambers Street, New York.

NOTICE!

TO DEALERS IN BEE-SUPPLIES.

We are now ready to figure with you for your next season's supplies.

G. B. LEWIS & CO.,
1tfdb Watertown, Wis.

HORSE-POWER in Texas For Sale.

Nearly new, and all complete. To make a quick sale I will take \$25.00 for it. C. W. COSTELLO,
19tfdb Waterboro, York Co., Maine.

APPLE-TREES.

600 Greenings, Baldwins, and Spies; 5 trees, 6 to 8 feet high, \$1.00; 8 to 10 ft., \$1.25; 10 or more, 6 to 8 ft., 15 cts. each; 8 to 10 ft., 20 cts. each. Strictly choice trees, and twice the size of common nursery stock.

C. M. GOODSPEED, Thorn Hill, N. Y.

2-48d

LOOK HERE!

A complete hive for comb honey, for only \$1.30. Planer-sawed, V-groove sections a specialty. Price list free.

J. M. KINZIE & CO.,
17tfdb Rochester, Oakland Co., Mich.

VIRGINIA

Land Agency. Cheap Farms.
Listed Free. GRIFIN &
JERVIS, Petersburg, Va.

NEW YORK, NEW JERSEY, MASS., + BEE-KEEPERS + CONN.

—SEND FOR MY NEW PRICE LIST.—

E. R. NEWCOMB, Pleasant Valley, Dutchess Co., N. Y.
4tfdb

FOLDING BOXES.

Our Cartons for enclosing Section Honey are the best & lowest priced in the market. Made in one piece. With or without Tape Handles. With Mica Fronts or without. In the Flat or set up. Printed or not. Any way to suit. We are bound to satisfy you. We have just put in special Machinery for their manufacture and are prepared to fill orders promptly. Price List Free. Samples 5c.

14 oz. Glass Jars \$5.25 per gross, including Corks & Labels, 11-2 & 2 gross in a Case, Catalogue of Honey Labels free.

A. O. CRAWFORD, S. Weymouth, Mass.

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent by mail for 10 cents. Address
6tfdb HENRY ALLEY, Wenham, Mass.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers."
1tfdb

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.
3tfdb

HOW TO RAISE COMB HONEY.

PRICE 5 cents. You need this pamphlet, and my free Bee and Supply Circular. Root's Fdn. Mill, 10-inch, good as new, \$18.00.
18tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

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CONVENTION NOTICES.

The Susquehanna County Bee-Keepers' Association will meet at New Milford, on Jan. 7, 1888. Subjects for discussion: The best way to prevent swarming; also, Is it advisable to Italianize? All bee-keepers are cordially invited.

H. M. SEELEY, Sec., Hartford, Pa.

The Western Bee-keepers' Society will hold a meeting on Wednesday, Nov. 16th next, at the residence of Mr. Peter Otto, cor. Park and 25th Streets, Kansas City, Mo. Take the 18th Street horse-cars at 9th and Main Sts. for 18th and Brooklyn Sts., thence walk south to 25th St., thence east one block to the house. We are sure of a cordial welcome from Mr. and Mrs. Otto, and expect a good meeting. JAS. A. NELSON, Sec.

The North-American Bee-keepers' Society and the North-western Bee-keepers' Society will meet in joint convention at the Commercial Hotel, corner of Lake and Dearborn Streets, Chicago, on Wednesday, Thursday, and Friday, Nov. 16, 17, and 18, 1887. Arrangements have been made with the hotel, for back room, one bed, two persons, \$1.75 per day, each; front room, \$2.00 per day, each person. This date occurs during the second week of the Fat-Stock Show, when excursion rates will be very low. The following is the programme, so far as has been determined upon:

Cost of the Production of Honey—J. H. Martin, Hartford, N. Y.
Controlling the Price of Honey—M. M. Baldrige, St. Charles, Illinois.

Getting the Best Price for Honey—E. J. Oatman, Dundee, Ill.
Commission Men and the Honey-Market—R. A. Burnett, Chicago, Ill.

Legislation for Bee-keepers—Dr. C. C. Miller, Marengo, Ill.
Objects and Methods of a Thorough Organization of the Bee-keepers of America—Thomas G. Newman, Chicago, Ill.

Comb Foundation; its Manufacture and Use—C. P. Dadant, Hamilton, Ill.

Production of Extracted Honey for Table Use—T. F. Bingham, Abonia, Mich.

The Production of Comb Honey—W. Z. Hutchinson, Flint, Mich.
Production of Comb and Extracted Honey in the Same Apiary—J. A. Green, Dayton, Ill.

Out-Apiaries—D. A. Jones, Beeton, Ont.

Foul Brood: How shall we Treat it?—A. I. Root, Medina, O.
Wintering Bees in the Northern States—R. L. Taylor, Lapeer, Michigan.

Bee-keeping Alone, or with other Pursuits; if the latter, in Connection with what?—Eugene Secor, Forest City, Ia.

Legs of the Bee—Prof. A. J. Cook, Agricultural College, Mich.
What is the best Name for Extracted Honey?—Thomas G. Newman, Chicago, Ill.

Bee-hives and Fixtures—James Heddon, Dowagiac, Mich.
W. Z. HUTCHINSON.

KIND WORDS FROM OUR CUSTOMERS.

My extractor, 15 or 16 years old, is still in good order. J. W. FISHER.

Nashville, Tenn., Sept. 20, 1887.

The boxes came, and to-day I put them together. Thanks for the nice shape they were packed—not a thing out of place or marred. They went together and fitted like a duck's foot in the mud.

Pine Creek, Mich., Oct. 11, 1887. G. W. DAVIS.

THAT NUCLEUS.

The two-frame nucleus of bees I got from you last spring has proved a success. For a long time I thought the bees would fail in this country, as they had never been tried; but in the last three months they have increased up to a large colony, and have

their box filled with honey—enough to winter them, I think, which is all I hoped for this year.
Lincoln, New Mexico, Sept. 29, 1887. J. N. COE.

THE ESTIMATION IN WHICH OUR JOURNAL IS HELD BY THE WHEELBARROW FOLKS.

GLEANINGS is received. We did not know you published such a valuable journal. We have spent a half-hour in looking it over and will give it to our neighbor Salisbury, who is a bee man of 50 hives.

KEMP & BURDEE MFG CO.

Syracuse, N. Y., Oct. 6, 1887.

BEES DID SPLENDIDLY.

My bees are all right, and have done splendidly so far this season. I have sold some \$50.00 worth of honey of this crop. Now, friend Root, you will accept thanks for past favors, and for continuing GLEANINGS. Long may you live and prosper, and give us the best of bee-books; and when you are done serving us, may your boy take your place and live the useful life that his father has before him. May you keep up Our Homes, and also the Tobacco Column, for both have done me good. I used tobacco for 28 years, and quit one year ago. I used it in every form that is known to man. I have quit for good. If I deserve a smoker, send it to some one who isn't able to buy one. T. J. PENICK.

Williston, Tenn., Aug. 3, 1887.

I write to let you know how much good you have done us. This spring my husband gave me a swarm of bees and I sold them and sent for GLEANINGS for him as a birthday present, and I do not think I could have invested a dollar any better, for he never read any religious matter before; but he says he can not help reading your "sermons." He enjoys the book very much. He wintered through five swarms of bees, and increased to 16. They are all in good shape for wintering. We did not get much surplus on account of dry weather. I have been an invalid for several years, and can not do much to help; but I am deeply interested in bee-keeping. May God bless you in your good work.

MRS. PHEBE BOARDMAN.

Weston, O., Oct. 12, 1887.

THE A B C BOOK AND GLEANINGS.

Many thanks for your favors. We take GLEANINGS, and through us Frank Strain was induced to take it and try "beeing" it. We learned all we know of bees from your A B C book. We loaned it to several who thought it so good they bought one for themselves. Ours is out now. We loaned it to Grant and Will Smith, near Alpha, Greene Co., O., who are anxious to have bees. They tell me they will take GLEANINGS. I loaned them some old ones, and they liked them better than any thing they had ever seen. I never lose an opportunity to speak a good word for GLEANINGS or A. I. Root as a good bee-man to deal with.

I sold \$1.25 worth of honey last year. I never sold a pound for less than 15 cts., and a great part at 18, 20, and 25 cts. This is a good location, and a good home market. I have taken only 208 lbs. of salable honey this year; sold \$5.00 worth at 20 cts. I have had several calls for honey, but did not sell any after I saw the crop would be short.

MRS. LIDA M. SWALLOW.

Bellbrook, O., Oct. 9, 1887.

FOR SALE.

A bee-ranch in San Diego Co., Cal., containing 320 acres of land, 400 stands of bees, empty hives, extractors, tank, and other fixings necessary to run a first-class bee-ranch. For particulars and price inquire of E. LOVETT, 21-23b Bernardo, San Diego Co., Cal.

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.

tfd JNO. VANDERVORT, Laceyville, Pa.

DADANT'S FOUNDATION FACTORY, WHOLE-SALE AND RETAIL. See advertisement in another column. 3btf

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is nothing new since our last report. Demand from manufacturers is good for extracted Southern honey, while arrivals are slow. There is a good demand from the jobbing trade for extracted clover honey in glass jars. Extracted honey brings 3½@8c per lb. on arrival. Comb honey sells at 18@20c per lb. for good to choice in the jobbing way. Demand is slow at those prices. *Beeswax* is in good demand, and brings 20@22c per lb. for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
Cincinnati, O.

Oct. 22.

ST. LOUIS.—*Honey.*—There is nothing new to report on honey, only that stocks here are very light, and it now looks as if we would have to get our supply from some other source than our home market. California white 2-lb. sections, 16@17c; white clover, 1-lb. sections, fancy, 18@20c; good, 15@17c; dark, 10@14c. White clover, extracted, cans, 7@9c; bbls., 6@7c; Southern, 4½@6c, as to quality. *Beeswax*, 20@21c.

W. B. WESTCOTT & Co.,
103 & 110 Market St., St. Louis, Mo.

Oct. 22.

KANSAS CITY.—*Honey.*—Our market is fairly supplied with comb and extracted honey. We quote choice white 1-lb. sections at 20c; dark, 15@16c; choice white 2-lb. sections, 18; dark, 14@15. Extracted, 8@10. California, choice 1-lb. sections, 18@20; choice white, 2-lb. sections, 18; dark, 14@15. Extracted, amber, 7@8c; extracted, white, 9.

Beeswax, No. 1, 22c; No. 2, 18.

Oct. 24, 1887.

CLEMONS, CLOON & Co.,
Cor. Fourth & Walnut Sts., Kansas City, Mo.

PHILADELPHIA.—*Honey.*—Honey is in moderate supply, consisting of little shipments of numerous marks. The warm weather has prevented any general demand, and the feeling is weak for the time, because there are no sales at full quotations, which holders expect to realize if weather favors, soon, but which they know they can not while it holds so warm. We quote as before.

PANCOAST & GRIFFITHS,
122 Dock St., Philadelphia, Pa.

Oct. 22.

ST. LOUIS.—*Honey.*—We quote choice comb 16@18c; latter is for choice white clover in good condition, and in 1-lb. sections. Strained, in bbls., 4½@5 cts. Extra fancy, of bright color and in No. 1 packages, ½ cent advance on above. Extracted, in bbls., 5½@6c; in cans, 7@8c. *Beeswax*, 20½c for prime.

Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

Oct. 22.

D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

CHICAGO.—*Honey.*—White comb in 1-lb. sections meets with a good steady demand at 18@20c, and a few fancy lots are held at 22c. Two-pound sections, about 16@18c, mostly 17@18c; extracted, 7@10c, according to color, body, flavor, and package. *Beeswax*, 22@25c. Demand for every thing in the honey line is good.

Oct. 21.

R. A. BURNETT,
161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—Our market remains firm, and we are selling all good lots of honey as fast as they come in, at full prices. While comb honey has not changed any from last quotations, which, however, are firmly maintained, we can report a firmer market on extracted, and quote white at 9½@10 c; dark, 6@7c.

Oct. 22.

F. G. STROHMEYER & Co.,
122 Water St., New York.

ALBANY.—*Honey.*—Market unchanged, steady, and prices well sustained. White, 14@20c, according to style comb; buckwheat, 11@13c. Extracted, white, 8@9c; buckwheat, 7@8c. Correspondence and consignments solicited.

Oct. 25.

H. R. WRIGHT,
328 Broadway, Albany, N. Y.

CLEVELAND.—*Honey.*—Best 1-lb. sections, white, sells readily at 19@20c; 2 lbs., white, 16@17c; second quality, 1-lb., 15@16c. Buckwheat, 12@14c. Extracted, white clover, 8c; basswood, 7c; Southern, slow at 4c. *Beeswax*, 25c.

Oct. 21.

A. C. KENDEL,
115 Ontario St., Cleveland, O.

BOSTON.—*Honey.*—Fancy one-pound comb, 18@20; two-pound comb, 17@18. Extracted, 7@8. Demand only fair, on account of warm weather.

Oct. 22.

BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

KANSAS CITY.—*Honey.*—Honey is in good demand, and prices of comb firm. Choice white 2-lb. sections, 17@18c; dark, 2 lbs., 14@15c; choice white 1-lb., 20c; dark, 15@17c; extracted, white, 8@10c; dark, 5@6c. *Beeswax*, 20@22c.

Oct. 24.

HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

DETROIT.—*Honey.*—The market for comb honey is improving. Best white, in 1-lb. sections, 18@20c. Extracted, 10@12c, with few sales. *Beeswax*, 23c.

Oct. 24.

Bell Branch, Mich., M. H. HUNT.

FOR SALE.—2000 lbs. comb honey, in 1-lb. sections. M. ISBELL, Norwalk, N. Y.

FOR SALE.—From 400 to 500 lbs. of No. 1 honey, white clover. E. T. LEWIS & Co., Toledo, O.

FOR SALE.—About 1000 lbs. of nice honey, in half and quarter barrels, at 9 cts. per lb. Samples sent on application. A. H. ROOT, Canastota, N. Y.

FOR SALE.—Two half-barrels of honey, mixed with alsike, basswood, and buckwheat; extracted this fall. J. J. MENN, Norwalk, Wis.

FOR SALE.—About 500 lbs. of fall honey, heart's-case or Spanish needle, perhaps both; nice golden color. U. BALDWIN, Stewardson, Ill.

FOR SALE.—I have about 6 bbls. of No. 1 clover and basswood honey that I want to dispose of. GEORGE YOUNG, Oak Harbor, Ottawa Co., O.

FOR SALE.—3000 lbs. clover and basswood honey, put up in Root's shipping-cans, delivered on board cars here at 10 cents per pound.

GEO. W. CHAPMAN, Millbury, Wood Co., O.

FOR SALE.—About one ton of nice comb honey, in one and two pound sections; unglazed, neatly crated, 24 lbs. in a crate.

ALBERT G. BRUSH, Susquehanna, Pa.

FOR SALE.—About 2000 lbs. of nice extracted honey, in 50-lb. tin cans. Samples sent. How much are we offered? WM. BARTH & BRO., Petersburg, Mahoning Co., O.

FOR SALE.—14 kegs of this year's, and 28 kegs of last year's honey, in Newman's largest-sized kegs. The former is all spring honey.

LAFAYETTE STOUT, Brighton, Iowa.

FOR SALE.—5000 lbs. State Fair, 1st premium new white clover and basswood honey, in 1 and 2 lb. sections, neat 24 and 48 lb. shipping-cases, delivered on board cars here for 20c cash, cases included. This is a "gilt-edged" lot.

JOS. NYSEWANDER, Des Moines, Iowa.

FOR SALE.—About 12,000 lbs. goldenrod honey in bbls., at 8½ cts. (bbls. free) on the cars, also 12,000 lbs. basswood honey, in 5-gal. tin cans, at 9½ cts. per lb.; 2 cans in shipping-case; cans have a 5-inch screw-top cover. The honey is thoroughly ripened.

A. CHRISTIE, Smithland, Woodbury Co., Iowa.

I have about 2000 lbs. in tin butter-packages, with wooden jackets, that hold from 75 to 80 lbs. each. It is candied, and ready to ship. Nearly or quite half of it is early honey, white clover mixed with other early kinds; the rest is fall honey of very fine quality. I have also about 3000 lbs. of the same quality that is in the combs yet. I will extract it and sell it all for 8 cts. per lb., delivered on cars here. I will put the rest in tin tubs or other packages as desired. Samples sent on application.

WM. H. SMITH, Brookton, Tomp Co., N. Y.

FOR SALE!

To deliver now or in the spring, 10 full colonies of pure Italian bees, 5 in new chaff hives, the rest in L. hives, \$5.50 each, or the 10 with extractor for \$50.00. Write for particulars to

S. F. REED, N. Dorchester, N. H.



Vol. XV.

NOV. 1, 1887.

No. 21.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.90; 3 for \$2.75, 5 for \$4.00;
10 or more, 75 cts. each. Single num-
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made at club rates. Above are all to
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NOT of the U. P. U., 42 cts. per year extra.

A CRITICISM ON THE EDITOR OF GLEANINGS.

AND BY ONE WHO IS NOT A SUBSCRIBER.

MR. ROOT:—I am aware that I am committing a breach of etiquette in writing to you, a stranger; and as I don't subscribe for GLEANINGS, and haven't a particle of interest in bees, except to give them a wide berth, and (I may as well confess all my short-comings at once) can't endure honey, I've not a shadow of an excuse for taking up your valuable time. But if I don't pay for GLEANINGS, some one who resides in the same house with me does, and I have the pleasure of reading it every fortnight, and very thoroughly I do it, even to the advertisements, which I never think of looking at in any other book or paper. But they have the same agreeable "Rooty" flavor which pervades the whole publication, and I "take it straight."

It seems to me your Christian name should be Sassafras, for your writings leave the same impression on my mind that sassafras root does on my tongue—spicy, a little pungent, and sweet. They say we New Englanders have sat with our backs braced against Bunker Hill and Plymouth Rock so long that we have absorbed something of their composition into our natures (taken it through the pores, as it were), and are rather hard and cold. Possibly it is the contrast between the coolness and reserve which I have always been accustomed to, which makes your cordial Western frankness so charming to me. When in the midst of a highly interesting article like your account of finding the spring, you stop and tell us that you "went up to the house after mother and the girls," our enjoyment in the perusal is enhanced by that

"one touch of nature which makes the whole world kin." And to be allowed the *entree* of your family, and meet constantly with your loved ones, till "Mother," "Connie," "Caddie," "Ernest," "Huber," are not abstract ideas to us, but flesh-and-blood realities, is a privilege which I for one appreciate, and for which please accept my thanks. And now, although I never have enriched you even one dollar for your magazine, I am going to presume to criticise it a little. How is that for "audacity"? Whenever I have a good hearty laugh over some of your quaint, fatherly expressions I exclaim, "How I *should* like to see that man!" A long while ago I settled it in my mind that you must look like one of our committee when I went to school—Mr. Robinson. He was a tall, portly, middle-aged gentleman, with a round, rosy face, twinkling blue eyes, and such an expression of kindly good nature in his smile, that, contrary to the usual order of things, the scholars were all pleased to see the schoolroom door open and his genial face appear. He never used to give us "puzzles" and gloat over our discomfiture. Not he; his face would look as anxious over a hesitating recitation as though he hadn't forgotten the time when he was a shaky-kneed boy standing before the committee, with his heart in his boots and his lesson anywhere but on his tongue's end. And the genial glow which overspread his features at the successful termination of a lesson made him look as lovable as Santa Claus at Christmas time. He had some queer little ways and expressions, and was decidedly unconventional, and I think we liked him all the better for that. Well, when the last GLEANINGS came, and I began to read your description of your office, I thought, "There now! I shall see if he looks like Mr. Robinson." But, alas! on turning the

page, I gazed only at your "vacant chair." Why didn't that photographer "boss" you a little too, and make you sit in that chair long enough to get your physiognomy? Now, don't you think 'twas a little unfair to give us a picture of your solar system and omit the sun? And as in all probability I am not the only one of your readers who is disappointed, couldn't you squeeze out time enough to give that artist one sitting and let us have the benefit of it? But please don't follow the example of the editor of the *Farm Journal* when his subscribers requested his portrait. He found an old daguerreotype of himself taken in his teens, and the next issue of his paper was adorned (?) with a picture of a smooth-faced callow youth who looked so embarrassed at having his "picture took" that one couldn't help feeling how much more comfortable he would have been if (like "Mattie" in your illustration) he had been taken back to. What we want is a picture of "Uncle Amos" just as he looks to-day, whose fatherly counsel, large-hearted philanthropy, and cheerful, sunny spirit are helping to make the world better, even way off here in Massachusetts.

MRS. A. B. JOLLI.

Taunton, Mass., Oct. 15, 1887.

Well, now look here, my good friend. If my name ought to be *Sassafras*, I wonder what *your* name ought to be. I appreciate the fine compliment you pay me; in fact, Mother, Connie, Caddie, Ernest, and Huber—yes, Maud too—(you left out Maud), will appreciate, and I am sure they will thank you from the bottom of their hearts, and will remember you a good long while. But you are making a sad mistake. I wish that I were such a man as Mr. Robinson; but I am neither tall nor portly; and if my eyes twinkle with good nature once in a while, it is a sad fact that they do not all the time. May be I shall be a better man, though, after having read your kind letter. I hope so. Well, as a good many others have been petitioning for a picture of your humble servant just as he is, I suppose we shall have to give way and have one made; and to confess the truth, I don't know but you have shaken me out of the notion I had got into. In the back part of the *A B C* book there is a picture of myself and Blue Eyes; and, by the way, I think I will send you the book, to see if that won't answer. But a good many of the friends have been calling for a picture of myself "just as I am," and Ernest is one of the loudest in his demands. He says he does not want the engraver to go to work on a new picture from a photograph that was taken a good while ago. Well, the idea that you have shaken me out of is this: That we may improve in our looks, as well as in experience and wisdom, by age; and that people see something in us after we are forty years old that was not to be seen at any earlier stage. By the way, my good friend Mrs. J., I wonder if I shall be transgressing if I say right here that I am just now a little curious to know how old *you* are. I know it is a delicate subject to touch upon, especially when talking with a lady; but you see you have been so very friendly that I can not help but feel acquainted already. It is so common to regard advancing age as a misfortune, and to be in haste to think it is time for us to step

down and out, and let the younger ones take the floor, that perhaps I had fallen in with the idea just a little. Then there is another good coming out of it: If I have got to sit for my picture again, I had better be getting ready for it; and as the spirit that is out of sight stamps its impress on the face that is in sight, I think I had better commence right to-day in cultivating a better spirit, so that, when the time comes to sit for my picture, that pleasant look we all want to see won't be forced and unnatural. And may be, when I get into the way of it I may keep on in that line until God calls. Now, my good friend, I have placed your communication the very first one in the journal, just because of the thought that you give us—that we may not only grow wiser and better as we advance in years, but that our faces may become year by year more pleasant and attractive to our friends than they have ever been; and as the task that devolves upon my poor self in just this line comes up before me, may I be permitted to breathe again that oft-repeated little prayer of mine, "Lord, help!"

THE ANATOMY OF THE HONEY-BEE.

PROF. COOK GIVES US A TALK ON BEES' LEGS.

IN the following articles, giving with accurate illustrations the anatomy of the honey-bee, I shall spare no pains to secure accuracy, both in description and illustrations. I will first give attention to the legs of bees; and in the present article, to the posterior legs, prefacing my article with the remark that no author or writer, so far as I know, has done the subject complete justice, either with pen or pencil.

All students of natural history now believe that organs of animals have been modified to adapt them to the uses to which they are put. Thus in all animals, organs most used are most modified, and so most useful in describing and classifying the animals. Hence the bee-keeper, knowing how important the hind-legs of the worker-bees are in the bee-economy, would expect them to be greatly modified; while the scientist, noting the extreme modification, would feel as certain that they had important and varied uses in the life-work of the bee.

The leg of the worker-bee, like that of many other insects, consists of nine joints. The first joint next to the body (Fig. 1st) is triangular, or, rather, sub-conical, in form; short, and covered with compound or pollen-gathering hairs, and is called the coxa. This fits into a similarly shaped cavity on the under side of the bee's thorax—the coxal cavity—and thus forms the articulation of the leg with the body. The second joint is in the form of a truncated cone; is about as long as the coxa, but smaller, and is also covered with compound hairs. This is the trochanter. The third joint is known as the femur, is much the same in form as the trochanter, but is nearly three times as long, and is also beset with the pollen-gathering hairs. The fourth joint, known as the tibia, is flat, and triangular in outline, broadening greatly as it extends from the body. On

* The drawings were made under my close scrutiny by one of my students in entomology, Mr. Fred H. Hillman.

the outside this has a smooth shallow cavity (Fig. 2) which forms the upper part of the pollen-basket. This cavity is margined with stiff simple hairs, which extend out and toward the end of the leg. They help to deepen the cavity. Those on the front edge of the leg curve toward the opposite edge. A few of these hairs at the end of the tibia are quite long, and curve so as to nearly reach the opposite edge of the leg. As will be noticed in the figure, there are also a few compound hairs on the front edge of the

the family *Apidae*, or bees. On the outside (Fig. 2), especially on the superior back corner, the pollen-basket is continued, and also deepened by stiff hairs. Above, on the inside, is a sort of toothless jaw, which completes the interesting apparatus already referred to. On the inside are nine rows of bright yellow stiff hairs. These act as so many combs to collect the pollen from the pollen-gathering hairs. We seldom catch and examine a bee in the working season that does not show some pollen grains adhering to these beautiful combs. The four remaining tarsi are much as usual, as are the



FIG. 2.

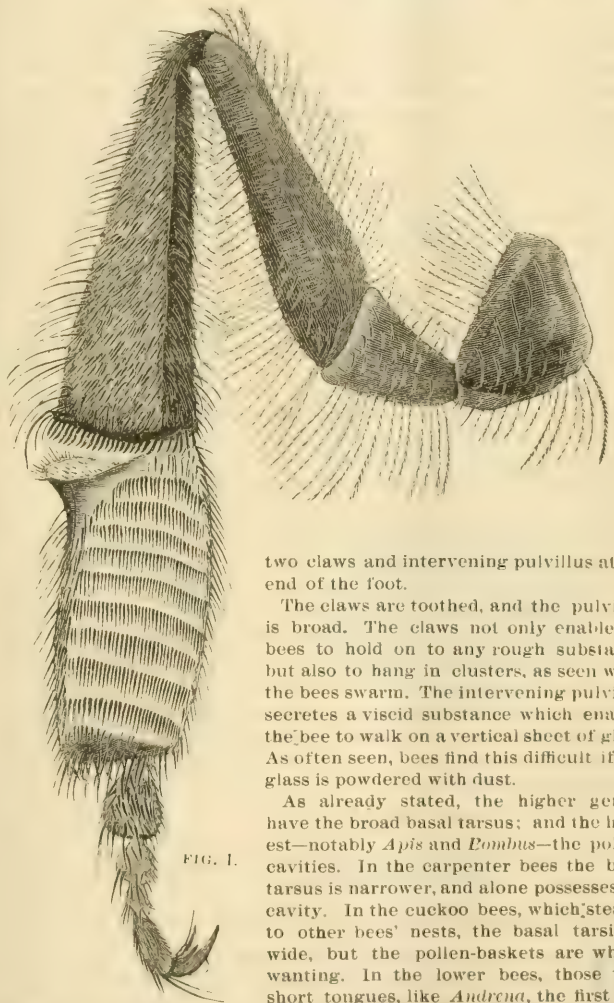


FIG. 1.

BEE'S HIND LEG, MAGNIFIED—TWO VIEWS.

tibia. On the inside, at the outer end of the tibia, is a row of spines which help to form the curious jaw-like apparatus seen at the joint, or articulation, between the tibia and next segment, or basal tarsus. In describing the jointed part of an insect, as leg, antenna, or body, we speak of one piece of each part as a joint, ring, or segment.

The fifth joint, or first or basal tarsus, is very broad, and really sub-rectangular, as seen in Fig. 1. This broad form is peculiar to the higher genera of

two claws and intervening pulvillus at the end of the foot.

The claws are toothed, and the pulvillus is broad. The claws not only enable the bees to hold on to any rough substance, but also to hang in clusters, as seen when the bees swarm. The intervening pulvillus secretes a viscid substance which enables the bee to walk on a vertical sheet of glass. As often seen, bees find this difficult if the glass is powdered with dust.

As already stated, the higher genera have the broad basal tarsus; and the highest—notably *Apis* and *Bombus*—the pollen-cavities. In the carpenter bees the basal tarsus is narrower, and alone possesses the cavity. In the cuckoo bees, which steal in to other bees' nests, the basal tarsi are wide, but the pollen-baskets are wholly wanting. In the lower bees, those with short tongues, like *Andrena*, the first tarsus is narrow, as in other insects. The pollen-gathering, or compound hairs, are quite common among bees, often covering much of the body, especially on the lower side. The peculiar jaw-like arrangement between the tibia and tarsus I find only in the worker-bee of the genus *Apis*, and in the queens and workers of the genus *Bombus*. This is as we should expect, if the function of these forceps is to grasp and convey the wax scales to the mouth. The beautiful pollen-combs on the inside of the basal tarsus (Fig. 1) are peculiar to the hive

bees, or bees of the genus *Apis*. Such bees need much pollen, and so are well provided with organs to collect it. While the stingless bees of Mexico have well-developed pollen-baskets, they are without the pollen-combs. The absence of the stiff spur—tibial spur—at the end of the posterior tibia is also peculiar to our honey-bees, or bees of the genus *Apis*.

The compound hairs are peculiarly fitted to collect the pollen from the stamens of the flowers, and to hold it till it is combed off by the beautiful combs already referred to. In some genera of our wild bees the pollen-brushes are very large on the femora, and in some the pollen-baskets are on the trochanter and femur.

The posterior legs of the queen are much the same form as those of the worker. They are large, but have not pollen-baskets, the highly developed hairs, the curious jaws and pollen-combs, which serve to distinguish the worker. The drone has weak legs, with simple hairs; the tibia is more narrowed toward the femur, and the basal tarsus has rounded angles. Here we find no pollen-baskets, and the jaw-like joint is absent. The drone's legs are even simpler, or less modified, than the legs of the queen.

We see how useful are the posterior legs of the worker-bees. They aid in walking; they sustain an enormous weight when bees cluster; they gather, transfer, and carry the nitrogenous food (the pollen) and the propolis; they grasp and carry forward the delicate wax scales, and aid to clean off the pollen as the bee frees its legs of this substance when the latter is pushed off into the cells of the comb.

There is no wonder, then, that these parts are useful in classifying this part of the great insect-world. Thus we say, the higher bees have the broadened basal tarsus, and the pollen-gathering hairs. The genera *Bombus* and *Apis*, with the stingless bees, have the pollen-baskets well marked, while only the two genera, *Apis* and *Bombus*, have the jaw-like joint, and only *Apis* the pollen-combs. The lower bees, like *Andrena*, have all the tarsi narrow. As some of these *Andrena* look much like bees, and often steal into the hives to pilfer honey, it is well to know their peculiarities.

In our next we will describe the anterior and middle legs of the worker-bee, which are also very interesting.

A. J. COOK.

Agricultural College, Mich.

KEEPING BEES ALL WINTER IN A DORMANT STATE.

ANOTHER LETTER FROM DANIEL MCFADDEN.

MR. ROOT:—We send you to-day a letter from Daniel McFadden, sent to us by Mr. Watson, of Alliston. We have taken a copy of it for the *C. B. J.*, and hasten to forward it on to you, hoping that it may reach you in time for your next issue. No doubt you will see many points in it of much interest. You see they do not have to make paper, for nature has provided them with it. They also use the birch bark for canoes, but of course they use much heavier bark. It can be pulled apart very thin, or left $\frac{1}{2}$ inch thick, if desired. You will see it answers very nicely for paper. They also make many curiosities out of it.

Beeton, Can., Oct. 25, 1887.

D. A. JONES.

The letter referred to above, written on thin sheets of birch bark, reads as follows:

My Dear Watson:—

I was glad to hear from you, and the more so on account of the bundle of news you sent me; and it happened I got it very soon after you sent it. Young Beavertail was out at that time. Well, in the first place I must reprimand you for what you wrote Mr. Root, as to Indians being more intelligent than white men, and that what they did not know was not worth knowing. Now, you know I did not say any such thing. I only said the Indians know some very useful things that white men do not know; but of course we all know they are not to be compared to white men in general intelligence; and in the sciences they are nowhere. Well, it is no wonder Mr. Root told you to be careful about placing confidence in me after what you told him. Now, I hope you will make no gratis statements for me in the future, if you have occasion to write to any person. Indeed, I am almost sorry I either told you or wrote to Mr. Root at all about our bee-business; but I have done it, and it is so.

I see one man was experimenting by putting bees in the snow, and could not revive them after three days. I don't wonder at that. In the first place, he starved them about to death; next, he wet them by putting warm bees in the snow; then he kept them in a room where there was plenty of air, and no doubt dampish; then he warmed them at the stove, although he tried some in the sun with better results. Now, just here I will answer your questions and tell where he was wrong.

Bees must not be starved; they must not be damp; they must not have any circulation of air about them, nor air-space. They would be likely to mildew and spoil; they must be at least above the freezing-point, which a bank of early snow never reaches, if made deep enough before hard frosts set in. If that man had made a magnifying piece of ice, and examined his bees, in 3 days he would have found mildew about their waists. The sun's rays is the only safe way to bring the bees to animation. Now I think that is all I can tell you about it. Remember that the bees must not be packed away starved. They must be perfectly dry, have no open air about them, nor light; no change of temperature, such as opening a hole in to them after they are packed. They must be opened only to the warm sun.

Now, as to our spring report, I have not much to say, but here it is. I put 250 colonies in a cave in the fall. I took out earlier than usual, the 20th of April, and exposed them to the sun, sheltered from the wind, my hives being tipped toward the sun. Two hundred and forty-seven came to all right. We made an ice magnifier and found a light mildew around the three that were lifeless. They were extra strong hives, and we not only think but know by experience that we did not get them properly cooled before putting them under the snow. We thought, as we had lost none for several years, and never lost but three since I started in with him, that we had got it down so fine that we should never lose any more; but you see we were mistaken. However, we don't fret about that.

Well, as to your other questions, first, I never want to live among white people again. We never saw and never want to see a missionary tramp in our territory. Second, we raise corn, buckwheat, and potatoes; we have fresh fish and dried fish,

venison, and moose beef; same way we have fat beaver, otter, fat dog, and often bear, pheasant, duck, and geese in abundance. Salt? ah, well, if I tell you we have a fine salt-spring I hope it will not excite the greed of white fiends to rummage our country for money-making. As for utensils, we have pots and all kinds of dishes, made of clay. We have a fine white hard clay. We have spoons, scraper, and ladles, made of copper. The scrapers are for cleaning and tanning skins. I don't wish to make any further statements as to where and how we get or make the copper basins, and I don't expect you to send the whole of my letter to the bee-paper—only the bee-report, and I don't care an acorn whether you send that either.

Well, we had an extra honey-yield this year so far. We have the second top on them all now, and I believe they will fill them full. You ask me the way we use honey as food and as a medicine. We use it in johnny-cake, and then use it with the cakes. We use it with buckwheat too. We use it with dried meat; we use it with spruce to make beer, which is a grand drink in summer. We use it in preserving the fruit we gather. As for medicine, we boil a weed I used to know as hoarhound; strain and simmer down till very strong, then add honey, about equal; take it cold, little and often. It will cure the worst cold on the lungs. Sometimes we use hemlock boughs instead of the weed, not ground hemlock. We use it with cherry bark too. Now, there is one thing I should like to ask you about. We have used so much honey, we have a great quantity of wax. We made a wigwam to store it in. We used some of it in fat for light, but it has accumulated until I think we have twenty pony-loads of it. A pony will carry 300 pounds a long journey. That would be 6000 pounds.

I don't want to know nor hear what any of the bee-men say about me and my bee-talk. It is nothing to us. I don't care to tell them any more about our bees; in fact, I haven't let my people know that I told what I did last winter. White men may stick to their theories. I have done my duty to them, and that is all I have to say. We are all well, and happy, and hope you and your friends are the same.

DANIEL MCFADDEN.

Raven's Peak, North Nipissing Ter., Aug. 31, 1887.

We give the above as we received it; and were it not for the fact that friend Jones has succeeded in a similar way for three weeks, we might drop the whole matter where it is. It seems that friend McFadden does not care to be questioned any further. It would seem as if this letter were a report in regard to bee culture further north than any thing we have had heretofore. North Nipissing Territory can be found in detail on a large and complete map of Canada; and it is possible that some of our readers may be able to give us more information in regard to this new field for bee culture. The principal thing that concerns us now is to determine by experiment how long bees may live, when filled and properly put away in a chilled condition. Such cold-storage rooms as those belonging to A. C. Kendel, in Cleveland, are to be found in any of our large cities, and will give facilities for securing any degree of temperature, and any degree of dryness of the atmosphere. Shutting off the light and air are things that are easily accomplished. It seems likely, from the ex-

periment that friend Jones has given us, that bees put up in this way, filled with honey, would live until the honey is consumed; and in this apparently lifeless condition, it is altogether probable that the amount of food consumed would be but a fraction compared with that consumed by an active bee.

OUR P. BENSON LETTER.

LINES COMPOSED ON SEEN OF A BEE DROWNED IN HONEY.

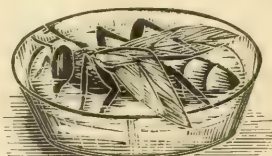
Small insect fraile
You thot to sale
In seas of feed
& took no heed.

Alas! alas!
It came to pass
From bein to greedy
Thou now art needy.

Why wuzzent you content
To continyew to went
Among the flowers
In life's gay owers?

Did you wish
To be a fish,
That you cood swim
Like a whale in such im-
Mense quantities of hunny?

Or wert thou a duck
To jump in kerchuck,
In the hunny to flote
Like a swift sailing bote,
And never to sink



"SAIL ON, SAIL ON, O SHIP OF STATE!"

In the drink?
I spose with joy you loudly sung
As in the deep yourself you flung,
"Sail on, sail on, O ship of state,"
But found you coodent when it was too late.

Yure wings were made to fly
On by
Up tored the sky.
Thou wast not made to go
Belo,
Whare see-weeds gro.

O butifool creecher of lite,
Whitch wurks in the day & the nite
Youl coz your fond muther to sy
When never agane you cum ny.

In fucher lurn,
Howair you yurn
To git a lot
Rite on the spot,
Doant take no notion
To sale in the otion.

BENSON A. B. S.

BEES, BERRIES, AND POULTRY.

SOMETHING FROM ONE OF OUR SUBSCRIBERS WHO MANAGES ALL THREE TOGETHER.

IN GLEANINGS, Oct. 1, Dr. C. C. Miller thinks bee-keeping and growing small fruits won't work together. If he could visit my place he would change his opinion, for my bees have a very happy time on fruit-blossoms. We have now some three acres of red raspberries among other fruit; and from the middle of May to nearly the middle of July the bees swarm on the blossoms from morning till night; and in wet weather, when they can't work on other plants they are always busy on raspberries; and our blackberries are a splendid plant for them also. After a fair trial I think bee-keeping and growing fruit is a success with me; and after eight years' experience I also say, for the next business to pass away idle moments, give me poultry. I raise three or four hundred chicks every year; and don't they have a nice time running among the bushes? Not many worms or bugs escape their eyes. They are always healthy and sharp; no hawks can catch them under the bushes. I can tend all three, and yet have time to play and not make as many mistakes as I have in writing this.

A. J. PERKINS.

Johnstown, N. Y., Oct. 5, 1887.

After receiving the above we wrote friend P. for further particulars, and he replies as follows:

HOW AND WHY BEES AND POULTRY DO NOT CONFLICT.

My time is so fully occupied that I can hardly spend time to write as I should like. At any rate, I will take the last of my text first, and commence with poultry.

Our poultry year commences by the first of September. At this time we usually sort our flocks, and put from twelve to twenty of our nicest pullets in each flock. We generally winter eight flocks, or from 100 to 150 fowls (the cocks are not allowed to run with the hens, but are kept in pens by themselves until breeding time, and then put with the hens about two days each week). We keep only pure-bred fowls. We have at this time Light Brahma, Plymouth Rocks, Brown Leghorns, and Silver-spangled Hamburgs. Our chicks hatched in April or May will commence to lay in September or October. About September first, when we sort our flocks, we keep our best pullets and cockerels, selling the culls. During the fall and winter we try, by extra feed and good care, to get the selected stock to lay all they will when eggs bring a large price.

We feed wheat, corn, oats, buckwheat (mixed, one-fourth of each), as soon as it is light in the morning, and the last thing just before dark. At noon we give them some warm feed, such as potatoes, turnips, apples, or vegetables of any kind, boiled and mixed with meal or shorts. We also put in sometimes a little linsed meal and fine bone flour. This will give them a glossy plumage, and keep them in nice condition. Cracked bone and oyster-shells are always before them, and they are given meat of some kind twice each week. For green food, cabbage is best. A little clover hay is good now and then. This I cut in the straw-cutter, and find it works well. Fresh water is given daily.

Four or five days before we want to save eggs for hatching, we put the cocks with the hens. We commence to set in March, and usually set from thirty

to forty hens. At first we give each hen eleven eggs; as the season gets warmer we give more, until the last hens sometimes have as many as twenty eggs. Ten chicks is a fair hatch for each hen. I have had as many as nineteen. When the chicks are hatched we put about twenty with a hen in a coop, some distance from the house, near our berries, in the orchard. In the orchard or in the garden they will pick bugs and worms from morning until night; and if you give them all they will eat they will not trouble your fruit or vegetables. In giving twenty chicks to each hen we have to take some from another hen just hatching. This hen we set again, and sometimes for the third time.

Now, this is all done by May first, before it is time in our section to work with bees. We have spent with the fowls about two hours each day in winter, thus leaving plenty of time to do other work, fixing bee-hives. Last winter I made 44 chaff hives besides doing a great deal of other work. After our chicks are in coops in the bushes, our trouble is over. We feed them at first five times a day. After they are five or six weeks old we feed them three times a day. We take the hen away when they are about four weeks old. The young cocks we sell to the market when they weigh from a pound and a half to three pounds. During the summer we sell our old stock, and in September we sort our stock and commence again on another year. Of course, I don't expect to get rich keeping fowls, but they help; and after an experience of eight years I am satisfied that they are profitable, and in connection with bee-keeping certainly are with me a success.

Here is my account with fowls last season, ending Sept. 1.

	Debit.	Credit.
Sept.,	\$15 54	\$16 44
Oct.,	9 08	11 49
Nov.,	8 61	6 03
Dec.,	4 30	6 02
Jan.,	4 10	22 35
Feb.,	5 10	18 04
Mar.,	11 06	24 19
Apr.,	6 06	20 82
May,	6 55	31 22
June,	10 67	20 03
July,	9 23	35 78
Aug.,	10 53	19 27
	\$100 83	\$231 68

Profit after paying for all feed used, \$130 85

I think the manure, and eggs and poultry used in my family more than pay for the care I gave them. My credit to them is only for fowls and eggs sold, and charge them for all feed at market price.

Johnstown, N. Y., Oct. 19, 1887. A. J. PERKINS.

Why, friend P., you have almost got "Stoddard's Egg-Farm" in practical working order on a small scale. If this were a poultry-journal instead of a bee-journal, I should ask you a multitude of questions. I am going to risk a couple, any way. How do you keep eight flocks separate without fences? and how much ground does it need for 150 fowls as you keep them? In other words, how far apart are the eight flocks? May be you keep them fenced up; but if so, I don't see just how they could run among your berries. Your little story has made me feel this morning as if I should like to take the first train and pay you a visit. Just one month in a year the feed cost more than the eggs came to, and that month is November. Can't you get enough extra pullets to keep up the credit side, even in November?

BEE ENTOMOLOGY,

Or Enemies of Bees Among the Insect Tribe.

SOUTHERN BEE-KILLER.

MR. P. HILL, Narrows, Brevard Co., Fla., sends a large bumble-bee-like robber-fly, of which he writes: "I take the liberty to send you a fly which you will please send to Prof. Cook. I caught it with a bee in its mouth. He is very strong with his mandibles, readily biting through the thick skin on the inside of my hand. I should like the name and habits of this fly."

Mr. A. W. Tufts, of Musson, La., sends to me, through GLEANINGS, two similar flies, except they are slightly smaller. The one from Mr. Hill might be compared in size to a queen bumble-bee; those from Mr. Tufts, to the smaller worker. Mr. Tufts writes: "He is a worse enemy to the honey-bee than the mosquito-hawk, or great dragon-fly. When he is disturbed he flies a short distance, alights, and flies again. He will go right to the entrance of the hive for his prey, thus differing from the mosquito-hawk, which takes his on the wing."

I have received these same robber-flies from several other bee-keepers of the South this season, and on previous years; and as I have not received these flies from the North, while the long slim black robber-flies are also destructive north, I will call these the Southern bee-killers. As there are no good illustrations of these flies, so far as I know, I will send a good figure and quite full description.



MALLOPHORA ORCINA.

Of these flies, I write as follows in my Manual, p. 319:

There are two other species of this family, *Mallophora orcina* and *M. bomboidea*, which differ greatly from those mentioned above (species of *Asilus* *crax* and *Promachus*, which are dark gray or black, with long slim bodies thinly covered with hairs). They look more like bumble-bees, for which they have been mistaken.

M. orcina, the smaller of these Southern bee-killers, is about one inch long, and expands (see figure) 1½ inches. *M. bomboidea* is a little larger. Both are yellow with black bands, and are densely clothed with hairs. The beak is very strong, and it is with this that these marauders are enabled to pierce the thick crust, and suck the life-blood of bee or other insect. It will be remembered that these, with all two-winged flies, belong to the order *Diptera*. All of these insects have their mouth-parts modified into a strong beak with which they pierce and suck. Thus it were more proper to say, perhaps, that the robber-flies, mosquitoes, and horse-flies, stab or pierce, than to say that they bite. These flies have a very strong beak, large strong feet (see Manual, Figs. 175 and 176, p. 319), and very prominent eyes.

As intimated by Messrs. Hill and Tufts, these are very ferocious insects. Indeed, they are very lions among the insect-tribes, or they would not dare attack the honey-bees. With their close allies, the *asilus* flies, they do much good, and we have only to regret that both these flies have the unwelcome habit of attacking and killing bees. It is to be hoped that they will never be numerous enough to cause serious anxiety. If they do, we must resort to hand-catching by aid of handle-nets.

Agricultural College, Mich.

A. J. COOK.

Prof. Cook:—I inclose a species of the bumble-bee that prove to be honey-thieves. They fly into the hives unmolested; but some of them are killed, as we found some lying in front. They were always of the color of the specimen sent. Unless very numerous, they could not do much harm.

J. L. GEYER, M. D.

Norwich, O., Oct. 12, 1887.

Prof. Cook replies as follows:

The bumble-bee from J. L. Geyer, Norwich, Ohio, is the worker of one of our most common species—*Bombus Virginiana*. Evidently it had had a hard time, as its thorax and abdomen were like old Uncle Ned's head. The hair was all gone. This is very apt to be true of any of the wild bees that are brave enough to enter a populous colony of bees. The bees, in striving to repel the invaders, rid them of their capillary covering. I do not think Dr. Geyer need have any fears of these bees. The special ones will be all dead another year, and their relatives will, quite likely, be of a more honest turn of mind.

A. J. COOK.

Agricultural College, Mich.

BEE BOTANY,

OR, HONEY-PLANTS TO BE NAMED.

THE BONESET.

MR. ALWIN S. HEIM, of Chandler, Indiana, sends two species of *Eupatorium*—boneset—of which he says: "No. 2 we call boneset."

I sent No. 1 to Mr. Root, and he called that boneset. Are there two kinds of bonesets? No. 2 has yielded honey plentifully for three years, while No. 1 seems worthless. Both are in bloom at the same time. Please say in GLEANINGS which is which."

No. 2 is *Eupatorium perfoliatum*, or the common boneset, or thoroughwort. It is very common on low ground all through the North, and is an excellent honey-plant. The honey is dark, but of pleasant flavor. No. 1 is *Eupatorium ageratoides*. It is known as white snake-root. I think it does often afford nectar; but as it grows on higher ground, we can understand why it has been void of nectar the past season of drought, while the common boneset has been in damp places, where it grows and flourishes, and so has not been so afflicted by drought. Yet I must say that boneset, goldenrods, and asters, have failed us entirely this year for the first time.

Let me add to the above, that we have thirteen species of *eupatorium*, as given by Gray. This author gives eleven species of the beautiful goldenrods—solidago—and sixteen species of the equally handsome and valuable asters.

A. J. COOK.

Agricultural College, Mich.

ASTER.

Prof. Cook:—By this mail I send you a specimen of a splendid honey-plant, known here as Kelley's honey-plant. It blooms here about the first of September; yields fair honey in great quantities. Please name, and give history in GLEANINGS. My bees work on it from morning till night. The honey is good for wintering. Last winter my bees had no other honey, and I did not lose a swarm. I can furnish seed if desired. M. A. KELLEY.

Milton, W. Va., Sept. 23, 1887.

Prof. Cook replies:

The plant sent by M. A. Kelley, Milton, W. Va., is an aster. The asters are always to be praised as honey-plants. They secrete abundantly, and afford excellent honey. Indeed, were aster honey as white as that from clover it would rank first or among the most prized of our honeys. I judge, also, from the excellent reports of it this year, that it is good in certain regions to stand the drought. I must say, however, that, while our bees are in excellent trim to store honey, still we have secured no honey this fall to speak of, though we have many autumn plants, among which are several species of asters. A. J. COOK.

Agricultural College, Mich.

APIFUGE.

A GOOD-NATURED REPLY.

DEAR SIR:—I am loth to trouble you again with my affairs; but my love of fair play will scarcely permit me to remain quiet so long as my preparation continues handicapped by your remarks. On the other hand, I freely acquit you of a purposed intention of being either unjust or unfair, our *esprit de corps* as bee-keepers forbidding any such thought for an instant. You are prejudiced, though, Mr. Root, without knowing it, perhaps; for you say, "Lest you may think I am prejudiced I take the following from the pen of one of your own countrymen," proceeding to quote an unfavorable (almost the only adverse and certainly far the *worst*) testimonial which has appeared amongst scores of favorable ones. These you totally ignore, though you must have seen them—editorials in the *British Bee-Journal*, *La Revue Internationale*, *L'Apiculteur*, testimonials from such men as Mr. Cowan, M. Bertrand, and others. Even the one you quote must be most exceptional, for the writer of it had a stock so wicked that neither smoke nor carbolic acid was of any use, and even *he* says, "That apifuge is useful in some cases, I know; but not with these particular bees."

Let me be well understood. Apifuge is a protective only for the surface on which it is rubbed (how you can use the word "smeared," after having used a substance not unlike brandy, I know not). It will not sole boots nor draw teeth; but it has kept and will keep the editor of GLEANINGS free from the stings of even those "Cyps" who select the spot beforehand through their little telescopes. "Let us do justice, though the heavens fall."

R. A. H. GRIMSHAW.

Crag Hill, Horseforth, Eng., Oct. 3, 1887.

It may be that I am prejudiced; if so, I try hard not to be. In either event, let me refer you to the statement of one who, of all

our correspondents, is singularly free from prejudice. I refer to Prof. Cook; see page 729, Oct. 1st issue.

OCCUPATIONS TO GO WITH BEE-KEEPING.

CAN OTHER INDUSTRIES BE MANAGED SUCCESSFULLY, AND NOT INTERFERE WITH BEES?

DR. MILLER has chosen a very opportune time to discuss the question of bee-keeping in connection with other pursuits. No doubt a great many of those who have made bee-keeping more or less a business are doing some very hard thinking as to whether the specialty business may not be overdone. There are not many occupations that are liable to ever prove so complete a failure as bee-keeping was the past season in this locality. It may be well enough for one to make a specialty of bee-keeping if he has the means to carry him over a bad season without hardship; but I think there are not very many bee-keepers who are able to work a whole year for less than nothing, as the past season has showed may sometimes be the lot of the specialist.

I can agree with Dr. Miller in all that he has said about small-fruit raising, with perhaps one exception. I know that it would take a very exceptional man, unless he had thoroughly competent and reliable assistants, to successfully manage a large apiary and a large berry-plantation at the same time. I have a brother who raises strawberries. They are not very far from my apiary, but it has been no small vexation to me that I was not able to get into that berry-patch and enjoy the sight of the ripening fruit and the luxury of picking it from the vines myself more than three or four times during the season. I simply could not get away from the bees. Plainly, the combination of bees and berries as a business is scarcely to be considered. One or the other is almost certain to be neglected.

Nor do I think very much more of poultry-keeping. There is this to be said against it, as well as some other industries that might be named, in that it requires a certain amount of attention not only every day, but several times a day. Rain or shine, whether honey be coming in or not, the chickens must be attended to or they will suffer; and during the honey season, when a man knows that his time is worth several times as much in the apiary as in the chicken-yard, the chickens are apt to be neglected.

I once heard some ladies discussing various household duties, and their preference among them. Dish-washing seemed to have no friends. All agreed that it was simply an unavoidable evil. The reason for this, I thought, was very aptly put by one of them when she said, "I should not mind it so much, only it's *always*." Now, one reason why I like bee-keeping is that it is not "*always*." Of course, there are times when the bee-keeper is bound closely enough at home; but during half the year, and at intervals during the other half, bees may be left to themselves, not only without detriment, but to positive advantage. There is plenty of work, to be sure, to be done in these intervals; but as a rule it does not have to be done at any fixed time. The freedom and independence which this gives, form one of the charms of bee-keeping,

and I should not like to go at any thing else that destroys this charm.

The field of winter work for the apiarist is a very wide one, and each must decide for himself, according to his situation, taste, abilities, and requirements. When it comes to summer work, that field is narrowed down. It must be something that will not take him from home. It must be something in which his time is his own. It should be something that will not absolutely require immediate attention at any particular time, especially when honey is to be expected. I, for one, should be glad to hear any suggestions in regard to occupations meeting these requirements.

There is one branch of fruit-raising that, to my mind, comes very near it. This is the production of grapes. The vine, with proper care and selection of varieties, will do well almost anywhere. It will bear considerable neglect, yet its culture affords abundant opportunity for intelligent skill to produce superior results. It requires only ordinary cultivation. The fruit ripens at a time when the work of the apiary is usually not very pressing. It does not require to be picked and marketed on the very day it is ripe. There is a considerable time between the ripening of the earliest and latest varieties; and many kinds may be kept for a long time after they are ripe, before marketing. As to a market, I have seen, in a neighboring town, grapes from California selling alongside of those from New York. One thing more: Whenever a bee-keeper becomes a raiser of grapes, a very strong argument is brought to bear on the much-voiced question of bees vs. grapes. J. A. GREEN.

Dayton, Ill., Oct. 7, 1887.

I will tell you, friend Green: Start a greenhouse, and raise lettuce in the winter, and celery, tomato, and other kinds of plants, later. If your bees are properly cared for in the fall, they will hardly need looking after until the greenhouse and plant business are laid aside. By the way, I wish some bee-keeping friend in or about Chicago would kindly look up the location of the Chicago lettuce greenhouses, so as to pilot me around when there, without my being obliged to hunt them up myself, and waste valuable time. Do I happen to have a friend inclined toward market-gardening, in the vicinity of Chicago?

MRS. CHADDOCK GOING TO FLORIDA.

SHE ACCEPTS MR. DRUMRIGHT'S PROPOSITION TO GO TENTING, ETC.

FOR three years, friend Hart has been trying to find me a nice easy place in Florida, such as schoolteaching, sewing, or companion to some rich lady; but so far he has been unsuccessful. The last letter I had from him said that general housework was the only thing needed. Then I wrote him to get me the *finest* position possible as *hired girl*. This is what I call coming down to hard pan. I have always contended, when writing on the subject of women's work, that "general housework" is just as respectable as any other trade, and that girls had much better engage in it than do shopwork in cities at starvation prices; and now I propose to put myself in her place and see just how it feels. I suppose I shall have to say

"ma'am," when speaking to my "mistress," and never have any opinion of my own.

I'd much rather tent out; but where are the others who will go "snooks" with me? And will those fresh oysters that Mr. Drumright tells about come high, or can we wade in and help ourselves free gratis for nothing? I like that tenting idea first rate; but won't it be awfully cold and chilly part of the time? and won't the rains come down, and make us all damp? and when it storms, won't the tent blow over and flap its wet sides in our faces? Of course, if I go I shall have to take my chances of wind and weather. Now, here is another advertisement: "All those wishing to go on the Chaddock Tenting Expedition to Florida will please communicate with the undersigned. Every fellow to find himself and help do the cooking. Women preferred; but a man or two along might be found useful. Expedition to start during the holidays, and stay until everybody is satisfied."

MAHALA B. CHADDOCK.

Vermont, Ill., Oct., 1887.

FOUL BROOD.

HOW A MAN FEELS WHEN HE FINDS HE HAS FOUL BROOD.

IN the fall of 1885 I purchased a colony of hybrid bees from a man who had foul brood (as I afterward found out) in his apiary. The following spring and summer I did not see a trace of it; but when the season of 1887 opened I spread the brood too much in this colony. The result was, I had one or two frames of chilled brood. This, I believe, started foul brood in my apiary. At any rate, in about four weeks all the brood-combs this colony had were pretty well riddled. Some time later I began reading GLEANINGS, and noticed under the head of Our Own Apiary the carbolic-acid treatment of scratching open the capped brood-cells and spraying with a solution of $\frac{1}{100}$ carbolic acid and water. Although I do not take any stock in this mode of treatment as a cure, yet I believe it prevented the spread of the disease, to a very great extent. About this time I found that three others had caught the contagion. Now, may be you can imagine how nervous I felt; and perhaps the cold sweat did not stand on me more than once. In order to cure it I have found this one thing to be a fact: You want as many bees as you can have; in fact, the stronger the colony is, the quicker it can be cured. If the colony were weak I would supply healthy capped brood until it was strong. My infected colonies were all strong but one, and that one I quickly made so. Then I commenced feeding granulated-sugar syrup with the addition of carbolic acid (crystals) in the proportion of 1 to 500. First, I poured the mixture into the brood-combs (after Cheshire), after which I allowed the bees to take it from a feeder as fast as they would carry it. I looked into the hives yesterday, Sept. 21, and found all the brood healthy except one frame. This had six or eight sunken caps. I gave them another dose of the stuff. I think now they are in a fair way to prosperity. When I looked into these four hives and saw the snow-white larvæ I felt like giving vent to a Comanche war-whoop; indeed, I haven't got over feeling jubilant yet. It may break out again slightly next spring, but I feel that I have got it by the windpipe now. Of course, I had the "cold

sweats" by fits and starts during all this treatment; and not until I had the disease under control, and this dreaded Moloch had yielded, did I relapse, and it nearly extracted the war-whoop of delight.

Mr. Root, I don't suppose you want to take any advice from me in regard to your health, as the old heads seem to keep you pretty well stocked with that article; but I want to say just this, and I guess the old heads and all will agree with me when I tell you to be very careful of your health, that it may not prevent your thoughts from appearing in each issue of GLEANINGS for some time to come.

Olean, N. Y., Sept. 22, 1887.

GEO. SHIBER.

Thanks for your valuable report, friend S. I tell you, we can all of us afford to indulge in a war-whoop if we succeed in devising a plan for conquering it; and one point you make gives me a ray of hope. You say that strong colonies are much better able to cope with the disease, and that foul brood broke out only when you spread a colony so as to cripple their powers. We have before this (see page 736) intimated that a powerful colony could clean out and destroy foul brood when it had first started. This, you know, is exactly the case with the work of the bee-moth. With energetic Italians, and enough of them, if given one comb at a time containing a little foul brood, is it not possible they could clean it out and get healthy brood in its place? I don't suggest this as a remedy, but as a valuable aid in working toward a remedy. That carbolic acid, though not affecting a cure, does prevent the spread of the disease, agrees exactly with our experience (see page 750 of Oct. 1st issue). Before foul brood came into our apiary, I didn't know the unsealed larvæ were affected; but since I learned it I know just how to appreciate your feelings when you saw those rows of snow-white larvæ, in place of the brown-looking dead ones. In regard to your last remark, I have for a few weeks back been fearing that some of our friends would hope I would get sick, or that something else would happen so I wouldn't take up quite so much space that might perhaps be better filled by others.

THE PROSPECTS FOR BEE-KEEPING IN JAMAICA.

THE CHARACTER AND CONDITION OF THE PEOPLE.

DEAR BROTHER:—The goods you sent came to hand in perfect order, and I found no trouble in putting them together. The customs-officer gave me some trouble, and delayed the goods nearly two weeks. I shall have no trouble hereafter. The people wondered greatly at the extractor, etc., and said, "America great country; Jamaica good for nothing." The assistant-inspector of schools visited me last week and was very much interested in my apiary and supplies; he gave me his order for one two story Simplicity hive complete. Before your goods arrived I made five one-story Simplicity hives, and procured five swarms of bees. I followed the instructions in the A B C book and transferred them without trouble, using thorns. This is not the season for honey, but the bees are gathering some honey and plenty of pollen. They will begin to make honey in November, but the season proper opens in January and

extends to July in this district. I have made, during odd moments, a handsome show-case for comb honey; and have made arrangements with one of the leading merchants in Kingston to sell it. People say I can't sell my honey, but I am confident I can, if I put it up in first-class condition. All the honey I have yet seen in market was put up in stick black bottles, and some of them had banana leaves rolled up for corks. I am confident that the people can make money out of honey at four or five cents a pound.

I have examined your catalogue, and saw so many little trinkets that a missionary can't get here, and can't well live without, that I have decided to send you an order. I can import most of what I eat and use for less than I can buy them in Kingston. Lumber for hives costs at Providence just as much as your hives will cost at catalogue price. Lumber suitable for hives, delivered at Providence, costs \$40.00 per M.

By putting a hive in the hands of some of the most apt of the people, I can instruct them to use them with profit. Missionary effort in this island is almost hopeless unless the financial condition of the people can be improved. The standard wages for a man is one shilling, and for a woman nine pence per day. They will toil from morning till night beneath a tropical sun for that pittance, and at night a single pound of miserable codfish costs six pence, and a pound of ham costs one shilling and a penny half-penny. Some of my neighbors have six small children to support out of the pittance that they earn. At such wages you will not be surprised when I tell you that the people live in huts covered with grass, or thatched with palm leaves, and walled with bamboo and daubed with mud. There are two rooms in their houses; generally one table, and one or two chairs or stools. For the most part, their beds consist of cocoanut mats, which they spread on the floor at night, and in the morning they roll them up and stand them in a corner. Their clothing is of the poorest quality, and they have but little at that. The children generally wear a garment which resembles a bag with two slits cut down on each side from the top, a hole cut in the bottom for the head to go through, and armholes cut at or near each corner. For the want of a better name we call them "mother Hubbards" when worn by a girl, and "father Hubbards" when worn by a boy. It is not an uncommon sight to see whole families of children denuded, playing by the wayside. These children are to be the men and women by and by; and what can you expect of them morally, when brought up in such poverty and wretchedness. But I must not occupy more of your time.

My mission work is progressing fairly well; nearly every meeting witnesses one or more precious souls turn to the Lord. All of our ministers but two are sick. The pastor of the Duke Street church in Kingston has symptoms of yellow fever. All we can do is, pray and wait.

J. W. JENKINS.

Providence, St. Mary, Ja., W. I., Oct. 3, 1887.

I will explain to our readers, that friend Jenkins was formerly a pastor in one of our Medina churches, therefore his excellent letter possesses a double interest to the Medina people. May God bless those children with their mother Hubbards and father Hubbards; and may the time soon come when they shall not only be clothed decent-

ly, but be educated and trained for the responsibilities that are soon to come upon them: and may God abundantly bless and strengthen you and your good wife, friend J., in the great work you have undertaken.

DOOLITTLE'S REPORT FOR 1887.

WHAT HE HAS BEEN DOING, AND HOW HE HAS SUCCEEDED.

As usual, I put, one year ago, about half of my bees in the cellar, and left the other half on their summer stands, packed with chaff and fine straw all around the sides, with a sawdust cushion about four inches thick, on top. The winter was unusually severe in this locality, with no chance for a flight for the bees for five months, or from Nov. 10th to April 10th, this being the longest I ever knew bees on the summer stands kept in their hives. Of the 40 wintered outdoors I lost 6; and from the 50 wintered in the cellar the loss was only one, which one starved to death. This colony consumed 23 lbs. of stores before dying, while many other colonies as near like it as two peas are like each other, as far as I could see, did not consume 8 lbs. each during the six months they were in the cellar. Who among our great men in the bee-world will tell me why that one colony should have consumed nearly three times as much as any other, under precisely the same conditions as far as human vision could discern? The estimated average consumption of honey per colony wintered in the cellar was $7\frac{1}{2}$ lbs., and 14 lbs. for each colony wintered outdoors. The difference regarding the consumption of honey is not quite so marked generally, between cellar wintering and chaff hives; and my way of accounting for it is, that the long-continued cold caused the bees to use this food or fuel to keep warm with to a greater extent than they do when there is an occasional warm spell.

After getting the bees from winter quarters, the spring, generally speaking, was unfavorable, the nights being cold all the while till nearly July. As my correspondence and other matters pressed upon my time very much, so much so that my physician said I must do less or break down in health, I concluded to sell off my bees so as to keep a much less number than I had at first intended. Consequently, the first of June found me with only 26 queens in my yard, 15 of which were mothers of fair colonies of bees; 5, mothers of rather weak colonies, and the remaining 6 had little more than bees enough with them to pull through to warm weather. In selling, I sent off my best colonies, and in reality I had but one really good colony in the 26, after sending off those sold. This one I would not spare, as it had my best drone-rearing queen in it, and I wished to preserve it for early drones. Before I fairly got straightened around to know what I had left to begin the season with, orders for queens began to pour in to such an extent that I feared I should be swamped. However, I had concluded to work 20 of the 26 for honey, which I did, although there was not one of them, except the colony containing the drone queen, but that contributed largely toward my queen-rearing, by way of furnishing bees and brood for nuclei. Owing to the cold nights it seemed almost impos-

sible to get the bees to breed up during the last half of May and in June, as they usually do. For this reason I saw that a large crop of basswood honey could not be obtained, let the rest of the season be ever so good; for, 37 days before the basswood was to bloom, the hives were not half full of brood, while, to have the promise of a good yield, every available cell should have been occupied by the queen at least that number of days before the honey-harvest commenced. This fact, and the drawing of bees and brood from each colony for the queen-business, was greatly against the honey-crop; and considering the whole, I am surprised that I did as well as I did, even although I never worked bees "for all they were worth" to so great an extent as I did the past summer. Fruit-trees gave no more honey than the bees consumed from day to day on their brood, and white clover did little if any better.

Basswood opened the 5th of July, and lasted 12 days, during which time the bees got all the honey they obtained except a little from teasel to finish up on. A good acreage of buckwheat was sown, much more than for several years past, and I had strong hopes of a yield from that, but not enough was obtained to show in the combs after it had gone out of blossom, so that I have to chronicle, not a cell of buckwheat honey in ten years, 1877 being the last season any surplus from that source has been obtained.

Of the 20 colonies, only 14 swarmed, so that, had I not made six more by artificial means, I should have had the smallest increase for years. I now have 40 colonies for winter, and 20 small ones, made of doubled-up nuclei, many of which are the smallest colonies, in bees, which I ever undertook to winter, some not having over a pint and a half of bees. The result is, 722 lbs. of comb honey and 317 of extracted—1039 lbs. in all, giving an average yield of nearly 52 lbs. to each of the 20 colonies. This honey (the comb) was mostly shipped on commission a few days ago, while the extracted I am selling out here at home. Our home market demands very little honey, and that little is mostly supplied by my neighbor bee-keepers.

The result in queens is about 500 sold, about one-half of which was of the "dollar" class, the remainder being about equally divided between the three other classes advertised. The 40 colonies had honey enough for winter after equalizing, but the united nuclei had to be fed the larger part of their winter stores.

G. M. DOOLITTLE.

Borodino, N. Y., Oct., 1887.

Why, old friend, you are getting to be quite a breeder of dollar queens, after all. Who would have supposed it? Fifty-two pounds of honey per colony is certainly a very fair result; but I think it was a good thing you didn't have very many colonies gathering honey for surplus during the past season. Your experience with buckwheat is a good deal discouraging. I have been informed that very much buckwheat honey is raised in the State of New York. Now, is it true that other bee-keepers in your part of the State have had no better success? At the convention in Albany our friend Wright, the man who sold so much honey in ten-cent packages, said he considered buckwheat the most important crop, and he has sold many thousand pounds of it.

HOW MANY COLONIES TO THE SQUARE MILE?

FRIEND PORTER GIVES US SOME THOUGHTS ON THE SUBJECT.

THE season has been a remarkable one here—never so poor; though bloom in orchard, field, and forest, was abundant, very little nectar was secreted till the last week in June, when the season for surplus honey usually closes; then until after July 15th we had a good flow of honey. My own average will be 40 lbs. of surplus to the hive for 100 colonies, spring count. The quality is very fine, largely from blue thistle.

OVERSTOCKING.

The old question, never yet settled, and one, perhaps, like some others, never to be fully settled, will again present itself—stocking and overstocking the field. It is when we have such seasons as the present that we realize what overstocking is. How many bees may be kept profitably upon a given field is no more decided, and, we may say, no more to be decided, than the much-debated one touching the profit of deep plowing, and for much the same reasons. Widely variant seasons so affect the secretion of nectar, that, setting aside the very important question of management, the results of the season's work are in no wise conclusive as to the point at which any given locality is overstocked.

Somewhere we have read, that in Europe as many as 6000 colonies have been kept on one square mile of land; but no mention is made of the product of these colonies. Who can report the largest number of bees to the square mile in America? It will be interesting in many ways to have some comparison of localities by reports from all sections.

We know of no greater number than 200 so kept in Virginia. Every observant apiarist knows that there are seasons when it seems that the supply of nectar is exhaustless; that, have as many bees as we may, all are employed from dawn till dark in ceaseless movement.

It will be a matter of interest to know if as many as 1000 colonies are kept on any one square mile in America, with profit to their owners—this without regard to the range inside of the mile. It is true, that four apiaries may be one mile apart, and on the four corners of a square mile; but even then have we any such localities? Can any reader of GLEANINGS report as many as that ever profitably worked?

Friend Manum, at Bristol, Vt., who made such a splendid record one year, with his product of 36,000 lbs., was obliged the year before to feed 6000 lbs. of sugar to winter his stocks. One year he was surely overstocked. He had bees in five localities not many miles apart. Let us get at the statistics, and see what they will show. J. W. PORTER.

Charlottesville, Va., Oct. 5, 1887.

Friend P., a few days ago I rode around a piece of swamp land that covers just about a square mile, and I now know better how big a square mile is than I ever did before. As you put it, it seems to me that fifty colonies would do very well on each corner of a square mile, and then I would have an apiary of fifty or more exactly in the center; and this is, I believe, about as many as most localities will permit profitably. Of course, it would depend a good deal upon what covered the fields of these 640 acres.

MELISSA, OR BEE-BALM.

ANOTHER PROMISING BEE-PLANT.

ON page 693, Sept. 15th GLEANINGS, I notice a report from C. M. Bliss, Fox Lake, Wis., a bee-friend of mine. He there speaks of a bee-plant, melissa, or bee-balm, as a great honey-plant. In early spring he kindly gave me 100 seeds of said plant for trial; and for the benefit of the bee-keeping community I will give a more minute description of the plant and its value. First, I will say the plant is a perfect success, both in profusion of bloom, quantity and quality of its honey, hardness, and freedom from bugs, worms, or plant-lice. I planted the 100 seeds May 1. To my surprise, every one came up in 5 days' time. The plants were hardy and strong, and were transplanted in open ground when three weeks old, neither wilting nor drooping, although not covered from the sun. They grew rapidly right along, notwithstanding the terrible drought we had all summer. The plant resembles the Texas horsemint, growing 2½ feet high, throwing out at least 25 branches from the ground to its top.

It began blossoming July 10, and soon became a solid white mass, continuing so until Sept. 20, and during all this time the bees were swarming upon it from 5 o'clock in the morning until too dark to see at night. The honey could be seen in the petals, as you once described the spider plant. I noticed many bees fill up on one petal, and go away. There is a strong minty odor, also, from the leaves of the plant. The yield of honey was large, and quality and color as good as white clover. I consider it ahead of the Simpson honey-plant or spider plant, as I have tried both. Motherwort, catnip, and sweet clover were deserted for this.

Another grand feature is, it blossoms the first season from the seed, and is so hardy that a failure of the plant may never be feared. I expect to cultivate an acre of it another season for its honey alone, and shall scatter seed in all waste places. The seed ripened on the lower stalks while the upper branches were in full bloom. I saved one peck of clean seed from my 100 plants; quite a little scattered and came up at once, so that thousands of young plants can be seen at this writing. Believing that the seed will be in active demand as soon as the qualities of the plant become known, I have been careful to save all the seed raised, and shall sow quite a lot next season. The rest you may have for distribution to the bee-friends, or I will mail ½ ounce to any one wishing it, for 12 cts. in stamps. E. A. MORGAN.

Columbus, Wis., Oct. 3, 1887.

Friend M., we have already had the bee-balm growing on our honey-farm; but we have not taken as much pains with it as we should have done. In fact, I have become so much discouraged about plants for honey alone, that I have not the enthusiasm that I once had. Our seed came from Mr. A. C. Tyrrel, Madison, Neb.; and one thing that prejudiced me against it was that he charged 50 cts. a package of perhaps half an ounce. Your price is quite reasonable, but I think it should be offered in five-cent packages, as seeds of other plants are, where a good many want just a few to make a test; and if you will excuse me, I should prefer to pay you a dollar a pound, say for what you have

to spare, and then I will offer it at five cents a package as other seeds are. If a dollar a pound is not enough we are willing to pay more; but the law of demand and supply will soon fix the price about where it ought to be. I am astonished to know that you secured a peck of seed from 100 plants. We probably had a good many more than 100 plants, but they were not transplanted so as to give them room to grow, at the proper time. We should be glad of reports in regard to the seed, from others who have given it a test. Perhaps I may suggest to our readers, that friend Morgan is the one who made such astonishing progress in bee culture, in a short time, when he first started, that for quite a number of years we christened him the "A B C child who grew so fast." By the way, did you have plants that produced some white and some colored blossoms? Ours are variegated, so as to make a very pretty appearance.

Since the above was in type, we have hunted up something further in regard to it, from the introducer, Mr. Tyrrel:

I am well satisfied with the product of the plants I had this season—so much so that I will plant five or six acres next season. To-day, Oct. 4, bees are working lively on melissa—the only plants that are yielding nectar now. I sent a package of seed to the Woodman Linseed-Oil Works, Omaha, to ascertain if the seed was of any value for oil. Following is an extract from a letter received from Mr. Clark Woodman, president of the works:

The sample of seed contained 24 per cent of oil. Flax seed contains about 38 per cent. In extracting oil from flax seed by hydraulic pressure, about 7 per cent of oil is left in the cake. The oil appears to be a drying oil.

From 2100 plants I procured a bushel of seed, and was not careful to save *all* the seed. When we take into consideration that melissa will pay to cultivate for the honey alone, and that the seed is valuable for oil, I think no one will dispute my word when I say it is, without doubt, the *best* honey-plant in existence.

A. C. TYRREL.

Madison, Neb., Oct. 4, 1887.

Friend T., you say you got a bushel of seed from 2100 plants, and our friend Morgan has made the astounding yield of a peck from only 100 plants. This latter report would indicate that it gives a larger yield of seed for the number of plants than any of our grains, unless it be corn. Will friend Morgan please tell us how much ground the 100 plants occupied? I presume ours were very much too close together to do well.

FINE WIRE FOR SEPARATORS.

BEES, COOKING-STONES, HEADACHES, ETC.

ON page 104 you ask for a report on the above. I gave them a pretty thorough trial, and the difficulty you mention I could not overcome. In spite of all my efforts, some of the wires would bend in and some out. Mr. Benedict is right; they were no hindrance to the bees, for in a few instances where a single wire projected beyond the others they just bedded the wire in the honey as if they never saw the wire.

DIME SECTIONS.

In reply to your question on page 107, I, in 1883

tried $4\frac{1}{4} \times 4\frac{1}{4}$ sections, of a width respectively $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{1}{2}$, and $1\frac{1}{4}$ inches, or 10, 9, 8, and 7 to the foot, 100 or more of each kind without separators. I am afraid no section without separators can be raised to sell by the piece; for among my smallest, or $1\frac{1}{4}$ -inch size, some were less than half a pound, and some were nearly a pound. The average was 9.57 oz. I think you might be interested to read a full account of the experiment on page 215 of *A. B. J.* for 1884. My experience leads me to believe that sections without separators will be more nearly uniform in weight if about $1\frac{1}{2}$ inches in width, than if larger or smaller. As nearly as I can estimate, if I had used sections one inch wide they would have averaged about $\frac{1}{2}$ lb. each; and if, as you propose, we use sections six to the L. frame, one inch in thickness or width, I think they would average $10\frac{1}{2}$ oz. or more. I think if we could have sections to retail for 10 cts. each by the piece it would be a nice thing; but I think there are more difficulties in the way than have yet come to the surface.

WARMING AND VENTILATING DWELLINGS.

If Bro. Terry can tell us just how to warm and ventilate our rooms he will solve a problem vastly more important than a majority of those which agitate our Solons at Washington. The manner in which it is done, makes in some cases the difference between life and death; in many, the difference between healthy happiness and a half-dead-and-alive dragging around. If friend Terry's plan is carried out in all its details it will make a great improvement in most cases. I want to emphasize the point he makes about large stoves. Why is it that the kitchen is often (generally, I think) the most comfortable room in the house? I'm glad it is; and one reason is because there is a very large heating surface to the cook-stove; and another, that the air is not so dry as in other rooms. I think if women realized how their furniture and house-plants suffer from dry atmosphere they would make some provision for making the air moist, even if they had to bang up wet towels by the stove. But the size of the stove is perhaps the most important factor; and a little stove kept red-hot, or nearly so, can never be as healthy as a big stove kept at moderate heat. Against base-burners, as generally used, my face is set. The effect seems to have been to get every thing as nearly air-tight as possible, and I don't know of any way to get more headache to the square inch for the same amount of money. No wonder that sensible people are beginning to revolt, and that there is a tendency toward something like the old-fashioned open fireplace of 50 or 100 years ago. I remember them in Western Pennsylvania, where I could stand in the fireplace, at one end, and look up with childish wonder directly into the open sky. Of course, they had a voracious appetite for fuel; but that mattered little, for the best hickory and maple body-wood, cut in 4-foot lengths, cost only \$1.00 a cord, delivered. You might roast one side and freeze the other, but there never was any lack of ventilation. Friend Terry objects to grates because of the expense, and prefers a very large stove virtually occupying three rooms. This is nice where the house, like his, is built for it. Even then it doesn't give the ventilation of open fires, and an item must be taken into account in expense that is sometimes overlooked. It is, that a room with an open fire at a certain temperature will feel comfortable at several degrees less temperature than a close room with a base-burn-

er. Some have a large base-burner, exclusively for heat, and in the same room an open grate for ventilation. There is a way of having the advantage of an open fire, and at the same time the greater heat of a stove. It is by the use of the "low-down" open stoves, though I don't think they are very low down. The same amount of coal will give a much greater heat than in an open grate set in the wall, and to most persons no heat is so pleasant, and none I think so healthy, as that from the direct radiation of an open fire. I suspect my open stoves are a little more expensive than close stoves would be; but then, I think we shall live longer on account of them. It is true, there are times when, as friend Terry suggests, we need to sit pretty close to the fire, but that doesn't give one the headache like the close stoves. If some of the friends who have been using close stoves, and having many headaches, would try hard coal in a large-sized "Harvard," made by Fuller, Warren & Co., Troy, N. Y., I think they might save enough in doctor-bills to help pay the coal-bill. I don't mean by what I have said that I am satisfied with the heating and ventilation of my home. I am far from it; but I think I made a long stride in advance some years ago when I adopted open stoves.

C. C. MILLER.

Marengo, McHenry Co., Ill., Oct., 1887.

Friend M., I am glad you are stirring up the atmosphere, not only in your own home, but I hope you will continue to keep it circulating about lively wherever GLEANINGS goes. We have been discussing it in Medina, not only in factories, but in churches and schoolrooms, and wherever people have to be shut up during the winter time. As for myself, I propose to be outdoors more than half of every day, and I really feel sorry, and pity from the bottom of my heart, the unfortunates who have to be shut up, away from the sunshine and frosty air.

TO THE KNICKERBOCKER BEE-FARM.

SOMETHING FURTHER FROM THEO. O. PEET.

AS promised in my last, I will give you an account of my visit to the above. I started at early morn, after leaving friend Young's, who had expected to make this visit with me, but could not on account of having to attend to his new house apiary while his help was available. By the kindness of one of the young men, a neighbor of friend Y.'s, I was taken in his buggy down to the ferry at Highland. The first thing that met my view as I stepped aboard the boat was the new cantilever bridge which is now building across the Hudson at this point. This bridge will be one of the wonders of the age when done, and also will be the means of turning a large portion of the freight direct from the East to the great West, leaving New York out in the cold, as at present the most of the eastern freight passes through that city. Well, she can spare it, I think, as she has more than she can take care of now.

Arriving at Poughkeepsie I found I had time to walk through the city to the depot of the railroad that runs across the country east, and which I must take to carry me to Pine Plains, where the Knickerbocker Bee-Farm is located. Arriving at the de-

pot I took the train. As each station was reached and passed, I expected or imagined the next would be Pine Plains, and that I should know it by the vast number of pine-trees I should see, and also a vast plain, or level country; but in this I was disappointed doubly. As I think of it now, I don't remember seeing a single pine-tree, and the country is any thing but level. This, however, doesn't seem to make much difference with our Yankee farmers. They take the country as it is, and make the best of it.

Friend Knickerbocker, who had been apprised of my coming, was on hand at the station with his carriage, and gave me a hearty welcome. Soon we were bounding over the hills and through the valleys to the "home of the honey-bee" at the Knickerbocker Bee-Farm. There I had the great pleasure of meeting my old and valued friend Mr. S. M. Locke, who is managing the queen department of the K. B. F. this season, for we two had been fellow-workers for Mr. J. H. Nellis, at Canajoharie, in former years. You may imagine how glad we were to see each other and talk over old times. We had with friend Knickerbocker a miniature bee-convention during the rest of my visit, consisting not only of bee-talk but some practical manipulating, observation of bees, hives, and apiculture in general. We spent the whole afternoon in the bee-yard, friend Locke seeming to want me to have a look at every queen in the yard, as he seemed to be so proud of them, and well he might, for I think I never saw so fine a lot of queens before in my life. Their progeny, both worker and drone, was as beautiful as heart could wish for, especially the drones, which were the handsomest that I ever saw. Looking, as they flew in the sun, like lumps of golden butter.

Friend K. has both the hanging and standing frames in his apiary, as a good many of his hives and also bees came from L. C. Root, of Mohawk, who used only the Quinby hive and frame. The queen-rearing hives are Mr. Locke's idea, or style, and are no doubt the best for the purpose in the country, as his experience in rearing queens is beyond that of most men, he having made that a specialty for years. He has his nursery in which he places the queen-cells just one day before they hatch, so that they all hatch in the hive in which they were built and reared. He also has his device which he calls his "hospital." This is for those cells that are built so close together that they can not be separated; and in order not to lose the queens he puts them in his hospital, and saves them all.

Another new thing I saw here, which is the invention of Mr. Knickerbocker, is a double wood separator, giving the bees a passageway right up through the hive and surplus arrangement to the very topmost box, without crawling over or coming in contact with the combs. This looks to me like a "big thing," and I expect to hear good results from it in the near future.

I had the pleasure of eating some alsike-clover honey which friend K. has secured, and also carrying home a sample, through his kindness in putting it in my sachel. I think alsike beats all other honey.

After another evening of bee-talk, and a good night's rest under the roof of one of the families of the "noblesse" of our country, my visit came to an end.

T. O. PEET.

Arlington, N. J., Oct. 18, 1887.

HOW TO MAKE YOUR OWN DRAWINGS.

A HOME-MADE CAMERA OBSCURA, AS MADE BY A BEE-KEEPER.

FRIEND ROOT: According to my promise in GLEANINGS, p. 544, I will now give you and your readers a description of my camera obscura. This apparatus consists of two parts—the camera-head, and the camera, or box. The camera-head, which is the principal part, is a box in which the lens and mirror are placed. The mirror reflects the picture through the lens on to a sheet of white paper placed or fastened on the bottom of the camera (box). The mirror must face the object, of which a picture is wanted. The artist must therefore have his back to the object. A black cloth or thick blanket is thrown over the top of the camera (not over the camera-head), and must cover the artist's head and body, so as to exclude as much light as possible. The darker the camera can be made, the brighter and more distinct will be the picture. The artist may sit in the shade, and this is preferable, as it is liable to become uncomfortably warm under the cloth; but the object must be in clear sunlight, to get a good picture.

In the "Artist's camera," which you used to sell, the picture is a "negative;" that is, what is on the right hand of the object shows in the left hand in the picture, and vice versa. In this camera the picture is a "positive," and shows the object in its natural position. The picture in this camera will be about 10 by 12 inches.

From James W. Queen & Co., manufacturers of mathematical, optical, and philosophical instruments, 924 Chestnut Street, Philadelphia, I obtained a 3-inch, double-convex lens (focus 20 to 20½ inches), and a 4 x 6-inch mirror. The two glasses cost me \$1.50 postpaid. From their letters I copy the following:

"The mirror should be placed close to the lens, otherwise the size of the picture will be reduced."

"The larger the lens, the greater the brilliancy of the picture; and the longer the focus, the larger the picture."

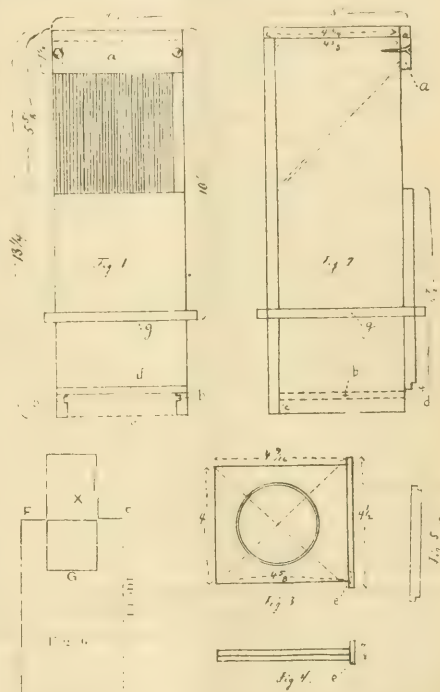
By experimenting I have found that for the size of picture I wanted (10 x 12 inch), I have got the distance between lens and mirror about right. A shorter distance would make the picture too large for my purpose. Queen & Co have camera-heads, mounted in brass, which they sell at \$5.00 and \$7.50 respectively; also a complete camera obscura at \$20.00, and a smaller size at \$17.50 (see their catalogue of microscopes and accessories, p. 7). But they said that the lenses are rather small, and that I would get better pictures by a home-made camera-head with a 3-inch lens.

By the drawings, which I will now explain, you will see the construction and dimensions of the camera-head.

It is made throughout of ¾-inch boards, except the little front-piece of the slide, which is scant ½ inch thick.

Fig. 1 gives a front view, showing by the shaded portion the opening through which light is admitted to the mirror. Above this opening is a little board, *a*, fastened with 2 screws, so that it can be removed when it is necessary to take the mirror out to clean it. At the bottom you see two grooves, *b b*, in which the slide holding the lens is inserted. Below these grooves a thin strip of wood, *c*, is nail-

ed on the inside of the back of the camera-head. This strip need be only ½ inch thick, and forms the second and last exception to the general measure of ¾ inch thickness, mentioned above, where I failed to notice it. The top edge of this little strip should come even with the under side of the slide, when this is in place. Its object is to prevent any light from coming through at that place. For the same purpose, the lower edge of the front side is rabbetted at *d*, and in this rabbet fits the thin strip which is nailed on the end of the slide (*e*, Figs. 3 and 4). No light should, if possible, be admitted to the camera when in use, except what comes through the lens. It is, of course, impossible to exclude all light from below; but the less the better.



DIAGRAMS OF MUTH-RASMUSSEN'S DRAWING-CAMERA.

Fig. 2 is a side view of the camera-head. The diagonal dotted lines show grooves cut in the inside of the side-pieces, at an angle of 45 degrees, in which grooves the mirror sits. The lower edge of the mirror rests against the back of the camera-head. The horizontal dotted lines, *b*, near the bottom, show the grooves in which the slide fits.

Fig. 3 is the slide which holds the lens. With an expansion-bit, a three-inch hole is cut from above, about two-thirds through the board, and then finished with a hole ½ inch less in diameter. The lens rests on the shoulder which is thus made in the hole. The larger (upper) part of the hole should be reamed a little, so that it will be larger at the shoulder than at the top. An open ring of brass wire is pressed down on top of the lens, to hold it in place; and as the hole is flaring, the ring can not come out.

Fig. 6 is too large to represent in proportional size, and is therefore greatly reduced; hence it bears no proportion to the other figures. Figs. 1 and 2 are represented by X in Fig. 6, the latter simply showing the box and how Figs. 1 and 2 are placed

except when removed by force. The center of the lens must, of course, be exactly under the center of the mirror.

Fig. 4 is a side view, and Fig. 5 a rear-end view of the slide, showing how the side edges are rabbeted to fit in the grooves *b* (Figs. 1 and 2).

The camera-head is put together with $\frac{3}{8}$ -inch wire nails driven about an inch apart. Before putting it together, the inside surfaces, as well as the slide, should be painted a dull black color to prevent any reflection of light. The outside may afterward be painted to suit the taste. I prefer black.

Any good box of suitable size will do for the camera, Fig. 6. I use a common cracker-box, $22\frac{1}{4}$ inches long, $14\frac{1}{2}$ inches wide, and $12\frac{1}{2}$ inches deep, inside measurement. This is placed on end, so that the top will be the open side of the camera. In the center of what is now the top is cut a hole to just admit the camera-head. It is best at first to have the camera-head fit rather tightly, so that it will stay where you place it, and not slip down. Now lay a sheet of white paper on the bottom of the camera (the inside of which should also be painted a dull black); place this on a level table, face the camera toward a house or other object at a distance of 150 to 200 feet, arrange the cloth over the camera and yourself (having your head under the cloth, and as much of your person as it will cover), and look at the picture on the paper. By moving the camera-head up and down you will get the picture more or less distinct. When you have the picture perfectly clear, the focus is right. In my camera it is $20\frac{3}{4}$ inches from the under side of the lens to the bottom of the camera. Now scratch with a knife-point a line all round the four sides of the camera-head, even with the top of the hole in which it sits (on the line of *ff*, Fig. 6), and where these lines come, fasten, with $\frac{3}{8}$ -inch wire nails, 4 small square sticks (*g*, Figs. 1, 2, and 6), on the four sides of the camera-head. You may now enlarge the hole in the camera, so that the camera-head will go in and out easily. The four strips will prevent it from dropping through.

For nearer objects a little longer focus is needed. This is effected by placing loose sticks, as pieces of sections or of frames, under the strips, *g*, only taking care that no light is admitted round the edges of the hole. One half-inch is as much as I have found it necessary to raise the camera-head.

It is necessary to have the camera obscura so high that the operator's head will not obstruct the view reflected through the mirror.

When every thing is ready, and you wish to fix the picture on the paper, all you have to do is to fasten the paper with tacks (flat-headed drawing-tacks are sold for this purpose) and then with a leadpencil trace the lines of the picture. When drawing trees or other objects that are liable to be moved by the wind, the air should be perfectly still, as the picture will show every object in view, moving or stationary, and in its natural colors.

I hope that this description will enable any one to make a good camera obscura of his own, and that the result will be lots of instructive pictures in GLEANINGS.

WM. MUTH-RASMUSSEN.

Independence, Cal., Sept. 19, 1887.

Friend M., your very clear and plain directions will, without doubt, enable any one to make an excellent camera obscura, and the instrument is worth all it costs, as a pleasing pastime for a family of children, to say

nothing about its value for drawing. I presume the reason that camera obscuras are so little used nowadays is because a whole photographic outfit and material can be furnished for from five to ten dollars. Most of the pictures that have recently appeared in GLEANINGS were taken with one of these instruments, including the picture of our factory, as well as the interior of our office, and also some of horses in rapid motion, men marching, etc. In fact, this ten-dollar instrument has produced some as good pictures of buildings, machinery, etc., as I ever saw made with any instrument in the hands of an expert photographer. These pictures were all taken by a young man who took up the business of his own accord, and with but limited practice.

ONE WHO HAS GOT THE BEE-FEVER.

ITALIANS COMPARED WITH BLACKS; THAT BEVELLED EDGE.

ABOUT three years ago, through curiosity I purchased two hives of black bees, as there were no others to be had. Luckily for me, a man came to our town shortly after, advocating the Simplicity hive and Italian bees.

I happened to go in where he was putting up Simplicity hives, and heard him speak of GLEANINGS. I was very curious to know more about it, but hesitated to ask him (knowing that there is a wonderful amount of selfishness in some people) for fear he might think I might attempt to compete with him in the business. However, I ventured to seek the much-desired information, and asked him to spend the night with me. To tell the truth, I afterward felt a little ashamed of myself for my uncalled-for suspicions as to his selfishness. I found him to be a nice Christian gentleman, and he not only gave me the address of GLEANINGS, but a good deal of practical information about bee-keeping. Then I did take bees right, so I at once sent for your catalogue and GLEANINGS; and from that to your much-appreciated A B C book, which I have thoroughly studied. The consequence is, I have the bee-fever still. I then came to the conclusion that I must have some of those beautiful Italians, so I sent to A. I. Root for a dollar queen. She came all right. I was successful in introducing her to one of my black stocks. She proved to be purely mated; and her workers were so pretty, so gentle, and so industrious, that I then had not only bees on the brain, but Italian bees. You may think it strange that I am still down with the bee-fever, when I tell you that I have not sold a single pound of honey. I have one of Prof. Cook's "queens" and two little bees in the house, which I consider a God-given blessing. They, with myself, very much like the coveted sweets, and we use a considerable amount of it. I should have had plenty of honey this year, had it not been for the long drought that has been so disastrous in so many States. The Italians have done well. They have some surplus, and are in splendid condition for winter, while the blacks, just a few hundred yards from me, have gone to naught. Even my hybrids have scarcely made enough to live on. I tell you, friend Root, I will not be bothered by black bees any more. I think the bee-men around here have at last decided to adopt the Italian bees

and frame hives, as they can in no other way account for my success.

I think we have a fair country for bees. When it is seasonable we have almost one continual honey-flow from February until frost in November. We have in early spring the myriads of prairie flowers (horsemint included), also the plum and haw, and other honey-producing trees and plants on the creek-bottoms. By the time they are gone, cotton is in bloom, which secretes honey until frost stops its growth.

THAT BEVELED EDGE.

I see that quite a number of our friends are opposed to the beveled edge of your hives, and prefer square joints; but for the life of me I can't see what for. If they had these Texas winds to contend with, I think they would find the bevel quite a necessity. For my part, I say hold on to it; you can't please everybody.

GLEANINGS is not only a great advertising medium, but has got to be a Christian missionary also. Oh how I enjoy that part in each number! for the sake of the great cause of Christ, never cease to keep this part of GLEANINGS up, for eternity alone will reveal the amount of good you are doing.

Granger, Texas, Oct. 18, 1887. S. J. FOSTER.

May God bless you, my good friend, with your bees and home, and especially the queen of that home and the two little bees. I sometimes tell the queen of our home, that, though God has given me a multitude of gifts, she is the greatest gift of them all.—I am glad to hear you make the point you have in regard to the beveled edge. Last Saturday we had a terrible wind. Quite a number of covers were blown off from the chaff hives, but the Simplicity covers kept their places. The one Heddon hive in our apiary lost its cover, and the upper story was twisted around so that, had the weather been severely cold, we might have lost the bees. The beveled edge kept the cover and upper story, both of them, exactly in place. It is true, we could have put a big stone on the hive, as Heddon does; but I would rather pay for the beveled edge ten times over, than to be obliged to handle a heavy stone every time I wanted to open a hive. May be our locality is more subject to hard winds than some other places.

REPORTS ENCOURAGING.

NOT EXACTLY DISCOURAGING; A GOOD FLOW FROM ASTERS.

THE bees had a fine time on the asters. There was a good flow of honey for two weeks. They all filled the brood-chambers well, and about a dozen of the best in Heddon hives made 50 or 60 lbs. of surplus. They put more in the sections, but are so slow to cap it that I think they intend to carry it below later in the season. I am nearly ready to go into winter quarters with 25 colonies in good condition. The season of 1887 was not as poor in our part of our State as in many of the Western States, but it can not be called a good season.

UNITING NUCLEI IN THE FALL.

I found this fall, that in uniting nuclei in the evening it is not necessary to sprinkle them with

scented water. I get all ready during the day, and about sunset I put them together, alternating the frames and smoking them well, and set a board up against the front of the hive, as does Heddon, so that the bees, on coming out in the morning, will mark their new location. The plan worked very well with me.

L. W. LIGHTY.

Mulberry, Pa.

Your plan is exactly the way we practice uniting, friend L. We have never found it necessary to sprinkle them, and only occasionally have we found it necessary to smoke them, although a good many will go back to their old location in spite of any precaution we may take.

ONE TON OF HONEY.

The honey crop in this section is this season rather short. I succeeded in getting about one ton of very good comb honey in one and two pound sections, from 100 colonies.

A. G. BRUSH.

Susquehanna, Pa., Oct. 10, 1887.

90 LBS. OF HONEY PER COLONY.

The bee-keepers of Newaygo Co. have taken a very light crop of honey. Mine have done well, though—the result of location, I suppose. I commenced with 16 colonies, increased to 38, and took 1434 lbs. of honey—an average of nearly 90 lbs. to the colony, spring count; 600 lbs. was extracted and taken from 5 colonies; 834 was comb honey, taken from 11 colonies—an average of 120 lbs. extracted and 76 lbs. comb. My bees are in the Hilton chaff hive and have an abundance of winter stores.

WILLIAM E. GOULD.

Fremont, Mich., Sept. 29, 1887.

70 GALLONS OF HONEY TAKEN THIS YEAR BY AN OLD LADY 70 YEARS OLD.

I am 70 years old. My husband died last April, a year ago. He was the owner of 37 swarms of bees; but when he died my bees nearly all died too, from starvation. During his sickness they did not get the attention they needed. When I got my friend Broers to help look after them there were but 7 swarms. That was June 19th, 1886. I now have 17. I have extracted 70 gallons of honey. I expect to get 30 more this fall. I use the Langstroth and Simplicity hives.

MRS. A. L. D. LEWIS.

Waelder, Texas, Sept. 28, 1887.

SECTIONS OF HONEY SELLING AT 25 CTS. EACH.

I am taking your advice, not to go in debt for bee-fixtures, but to make my bees self-sustaining. I am well pleased with the purchase I made from you last spring. The foundation and the small sections have worked well. I have the Langstroth hive, and I can place 18 of the sections on top of each hive. I have one colony that filled them twice, and came near filling them the third time. I put the first swarm in the hive I got from you, and they swarmed in August, but did not fill all the sections. The second swarm, I put in the Langstroth hive. It did not swarm, but nearly filled 18 sections. I have sold 31 boxes at 25 cts. each, and have orders for 30 more. I think I can sell all I have to spare, which will be about 50 more than I have orders for, all at 25 cts. per box. I had one swarm go to the woods.

J. M. MAHAN.

Vineland, N. J., Sept. 30, 1887.

LIVING IN HOPES OF BETTER SUCCESS NEXT SEASON.

I commenced the season of 1887 with 11 colonies in fair condition in the spring. The spring was cold and backward, being rather dry. The drought continued through June, July, and till the middle of August. After the rains commenced in August, the bees began to get some honey; and with smartweed or blackheart, and other fall flowers, I think they are in good shape for winter. I got no surplus at all, or not to exceed a pound; but my colonies are strong and clean, all in L. hives, 1½ story. I pack them in chaff at sides and top, and winter on summer stands. I am an A B C scholar, also a reader of GLEANINGS. You need not put me in Reports Discouraging, but as living in hopes of better success next year. There is little or no honey in this section; and what there is, is retailing at 20 cts. in 1-lb. sections.

J. A. CAMPBELL.

Deland, Ill., Oct. 17, 1887.

A RAILROAD MAN, AND HOW HE MAKES BEES A SUCCESS.

I am railroading for the C., M. & St. P. R. R. Co., who send me from State to State, and my mail follows me from place to place. I have a few colonies at Wilton, Wis. My friend, Charles Todd, looks after them, and I send GLEANINGS to him. I started in the bee-business last spring, buying one swarm and two nuclei. We have now 13 good colonies, with stores enough to winter on; but we have only honey enough for family use, as it was a very dry season; but you see the investment was a good one. We are both satisfied; and if a good season follows a poor one, we shall get good interest on the investment, and well paid for the work. Mr. Todd says you are the squarest man he has dealt with yet; and what little dealing I have had with you, I am very much pleased with. One thing I am sure of: If all of your advertisers were as square and as honest as you are, your sales would be less, on account of distance of purchasers.

R. W. SUMMERVILLE.

Merrill, Wis., Sept. 28, 1887.

REPORTS DISCOURAGING.

ONLY 800 LBS. OF HONEY FROM 53 COLONIES.

THE honey crop was a failure in this locality. We have 53 colonies of bees, and got 800 lbs. of honey, which was a great deal better than most of the bees averaged. The honey was only half a crop.

GRACE HORTON.

Smithboro, N. Y., Oct. 10, 1887.

HALF THE BEES DEAD FROM STARVATION, AND MORE TO FOLLOW.

Bees have starved all this season, and nearly half about me have died, starved out, and flown off, or been doubled up to save the combs. I think half of what remain here will die this winter. No one here feeds stock, much less bees.

A. W. BRYAN.

San Marcos, Texas, Oct. 5, 1887.

IS A LARGE APIARY DETRIMENTAL TO SMALL APIARIES IN THEIR VICINITY?

The season for bees has been very poor this summer; and the consequence is, a small crop of surplus honey. My average crop of surplus comb

honey is about 15 lbs. per hive. My bees are in good shape for winter. My neighbor's bees, close by, had the benefit of the same fields, but did not do so well by far. My nearest neighbor thinks my bees hindered his smaller apiary from going after honey. Can this be proved by experience? I have never seen this.

G. W.

Marietta, Ohio, Oct. 18, 1887.

Friend W., it is no doubt true that a small apiary would do much better somewhere else than in the immediate neighborhood of a large apiary; but the difference would be slight, unless you have a great many bees—say 100 colonies or more. As you don't tell us how many you keep, we can't give you a very positive answer.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HONEY-DEW NOT NECESSARILY FATAL AS A WINTER FOOD; SWARMING NOT PREVENTED A LA FRANCE.

I HAVE noticed there is quite a discussion about honey-dew for wintering. Now, I will give you a little of my experience, and you may have it for what it is worth. In Sept., 1886, one of my neighbors cut two bee-trees and gave me the bees; and as I had quite a lot of full combs of honey-dew I gave them that and nothing else. It was in nice new combs. I took the same care of each one, and in the spring one colony was dead, and it was in a *muss*, I tell you. The other one came out as nice and clean as a new swarm in June. I could not help noticing how sweet they smelled. Then another colony had nice white basswood honey all capped over in new comb, and they died with diarrhea, and were like the first I mentioned. Now, why were they so? I can not think Mr. France would make a success of taking away the queens to prevent swarming, if they did with him as they have with me. When I took the queen away I found that the twelfth day there would another queen hatch, and almost every time they would swarm. Some might say, "Why did you not cut out the queen cells?" Well, I have done that, and then I have had them swarm out till there was not a quart of bees left, and they have acted so persistently about it that I think they might swarm if they had no queen. There is no complaint here about what to do with the surplus honey this year. I hear there is a man in this county peddling his last-year's honey-dew (extracted) at 12½ cts. per lb. I have nearly 2000 lbs. from 101 colonies, spring count, all extracted; but a good deal of that was from buckwheat. This is the first year for some time that buckwheat has produced any honey. Bees are in good condition to winter.

T. D. WALLAR.

Port Andrew, Wis., Sept. 28, 1887.

Friend W., you have given us a valuable fact indeed; for we now know, at least pretty positively, that stores are not the sole cause of diarrhea. If the two colonies have exactly the same kind of food and the same protection, as nearly as we can tell, it is a very hard matter to see why one should winter beautifully, and the other be diseased so badly. I suppose you have exam-

ined both hives in regard to ventilation, protection from the wind, and all these matters. It is possible, although hardly probable, that the queen had something to do with it. The case I mentioned recently, of combs of sealed stores that killed the bees during one winter and wintered them all right the next, is in the same line.—We are to understand from what you say, that your bees swarmed without the queen. This is very unusual; but I should suppose in such a case they would scatter about or go into other hives, or wherever it happened.

THE GIVEN PRESS.

Yes, I am still holding to the Given press, and like it as well as ever for making fdn. for the brood-chamber; but I have never been able to make as nice thin and even fdn. on it as can be made on the roller mill, therefore I prefer purchasing my thin fdn. You speak of the Given fdn. being made right inside of the wired frames. That is no advantage at all. I now prefer putting in the fdn. with a wire-embedder.

I. R. GOOD.

Nappanee, Ind., Oct. 24, 1887.

I am glad to hear that you still use the Given press, friend G.; but I confess I don't quite understand why you have abandoned making foundation right in the wired frames. At one time we thought that that was going to be a very great labor-saving device. Will the friends who are using the Given press tell us if their experience is the same?

TEXAS BEE-KILLER.

The insect sent by Edwin Hollkamp, Belleville, Texas, is an *asilus* fly ground to powder. There is just enough to show me that it is one of the long slim *Asilidae*, like *Asilus Missouriensis*, and that it is a new species to me. That makes me very sorry—shall I say vexed?—that it was crushed in the mail. Now, Mr. Editor, I wish to give my spare minutes for the next ten years to studying and describing our wild bees, and those insects that prey upon bees; so I shall be very glad to get bees and bee-enemies from all parts of the United States. These insects should be carefully killed by use of chloroform or gasoline, which may be poured immediately on the insects. They should not be marred or injured at all, and they should be mailed in a *strong* box, which must be of wood or tin. Pasteboard will not stand the pressure. So I hope all readers of GLEANINGS will aid me.

THE NATIONAL CONVENTION.

I wish to emphasize every point made by Dr. Miller, as to our National Convention. I think he is right as to change of officers. I know of no other association where the officers change at the meetings. I think there is no reason for the change, and many against it.

A. J. COOK.

Agricultural College, Mich.

SOMETHING ABOUT BEE-VEILS.

I notice that the Excelsior Manufacturing Company are offering the Charter-Oak stove for sale under a new phase—that is, the gauze wire, in the oven-doors are said to turn in a certain amount of the air, and yet it does not permit the heat of the oven to escape. We also know that miners use

gauze wire to prevent their lamps from igniting the damp in the mines, and coal-oil stoves have gauze wire to prevent the oil from igniting or the fumes from the same taking fire. Does not this principle also apply to the bee-veil, whether of wire or other netting? We all know that they are insufferably hot to wear, and now it remains for some of your scientific readers to devise something to wear over the face that will keep the bees out and at the same time permit the heat to escape, and be otherwise pleasant to wear. Is it not the meshes that keep the heat in? and can not something be devised to remedy the trouble?

T. E. HANBURY.

Box 98, Atlanta, Ga.

If I understand you, friend H., you mean that we need some wire cloth with meshes just as large as they can possibly be and not permit a bee to crawl through, and at the same time have the wire just as small as possible. I have spent a good deal of time and some money on this problem. What we want is something made after the fashion of poultry-netting. The size of mesh must be just about that which we use for our honey-extractors; but the wire should be as fine, or finer, than that used for queen-cages. No wire-cloth manufacturer in the world is prepared at present to furnish us such wire cloth, and it will require very expensive machinery to produce it. Where the wire is so fine and the meshes so large, the wires would not keep in place unless twisted around each other, in about the same way our finest silk lace is woven. If anybody in the world can furnish us such a fabric, I should like to see it. I would suggest that it be made of brass or copper wire, to prevent rusting and breaking.

BEE-HIVES IN THE GROUND IN AUSTRALIA.

I came across a strange freak of bee-nature the other day that I think may be interesting to many of your readers who wish to study the habits of the bee. Some boys out bird-hunting reported to me they had found a bee's-nest in the bank of a creek in an out-hill. I went out and found it as they had reported. A colony of bees had taken possession of a hole on the bank of a creek. It had been an ants'-nest, and either the ants had deserted it or the bees had driven the ants back. This latter I believe to be the case, for I found afterward, on getting the bees all out of the hole, and digging the comb out, that the ants had a nest side by side with the bees, and had access to the honey. The hole, or nest, I found to be about two feet deep, and about eighteen inches to two feet wide, and was full of comb, and a good supply of honey. It was one of the strongest colonies of bees I have ever seen. Although a great number were destroyed I was able to get a big fine swarm out of them. I have spoken to a number of the old woodsmen in these parts, and they all say they have never come across such a thing, as they have always found that the bees build in old trees. I have also spoken and written to several old bee-keepers about it. They, also, say they have never seen or heard of such a strange freak on the part of the bees. Perhaps some of your readers will be able to say if any thing of the kind has ever come under their notice. From what I saw of the samples of the earth, and the small ant-holes side by side, I feel convinced that the bees

were powerful enough to have driven the ants back. But the strangest part was, that there was only the one hole of entrance, so that the bees and ants must have passed each other going in and out. The comb was old in many places, as if the bees had been there some time. The bees in the hole were only the common brown bee, but very vigorous workers.

We are having a glorious spring here, September being our first month, so that we expect to have a good season after a number of bad ones.

F. MARKEL.

Campbelltown, N. S. W., Australia, Sept. 5, 1887.

Friend M., the matter of bees working in the ground is not new in countries where there is little or no rain to fill up their holes or drown them out. My brother in San Diego, Cal., has written of numerous swarms of bees found in holes in the ground in that vicinity. In many parts of the world they are in the habit of storing considerable quantities of honey in caves; and where there is no rain during the summer months they can occupy holes in the ground, and do quite well. I have several times seen ants occupy part of a bee-hive when the hive was larger than the necessities of the bees required. When the colonies of bees increase, however, so as to need the room, the ants are generally given to understand in some way or other. I don't just know how, that they had better vacate, and I believe they generally pack up their duds and obey orders.

FLAT-BOTTOM FOUNDATION IMPRACTICABLE.

Last spring I purchased of you a foundation-mill for making flat-bottom fdn. for starters in sections. While the mill made nice-looking fdn., yet in my experience of the past season it does not fill the bill. In my tests the past season I used this flat-bottom fdn., and fdn. made on a ten-inch Vandervort mill, for making brood fdn. The wax I used on section fdn., worked on both the flat-bottom and natural-base machines, was sheeted at the same time, and was one and the same, and hence of the same weight. In working, the sheets made on the flat-bottom mill would draw out a little longer than those made on the Vandervort mill, which would make the flat-bottom fdn. just a little lighter—a very little too. The base of cells made on the Vandervort mill were very thin; but the side wall, or lines, were quite heavy. In my tests I used the chaff hive. I use honey-racks, four to a hive when full, each rack holding 18 sections, with no separators. I place two honey-racks side by side on a honey-board. When they are partly capped I raise them up and place others under. In testing the fdn. I filled some racks with sections having flat-bottom fdn., and others filled with sections having natural-base fdn. Other racks were filled, one row with flat and one with natural base fdn. These racks were placed in the hives, some with one rack having natural base, and one with flat bottom; others with half flat and half natural base, placing some with a row of flat over the center of the cluster, and natural base outside, and *vice versa*. In every instance the bees showed a decided preference for the natural base, going to work at once and filling the sections, and refusing to use the flat-bottom fdn., and in many instances tearing out the fdn. Colonies having a rack of each flat and natu-

ral base fdn. would fill all the sections in the rack having the natural-base fdn., and leave the other rack empty. The only instance in which the bees would accept the flat bottom at all was where racks were used having one side with flat and the other with natural base, and placed with the natural base furthest from the cluster, in which case they worked on all at about the same time. For me I am satisfied that flat-bottom fdn. is used at a loss, and I shall be content in the future to use natural-base fdn.

C. A. GRAVES.

Birmingham, O., Oct. 6, 1887.

THE PARTRIDGE-PEA AS A HONEY-PLANT.

I send you by to-day's mail a sample of partridge-pea honey. The partridge-pea is our best honey-plant. In the high pine forest it yields honey from the first of June till the first of September. Where it is in cultivated fields, I think it would fill a vacancy in many locations further north. I will send you some seed, if you want to give it a trial. It is an annual of easy cultivation, and not a noxious weed.

Argo, Fla., Sept. 26, 1887.

F. T. KUHN.

Thanks, friend K. The sample of honey is quite pleasant to the taste, but it is too dark colored to command a good price in our Northern markets. You don't tell us whether the partridge-pea is a cultivated plant with you or not. If so, we presume it is of some other use than for honey alone. It would probably be of little use to try it so far north as we are, unless it has been already grown as far north as our parallel. But perhaps some of our Southern friends will be glad of some of the seed. If it has any uses aside from its value as a honey-plant, we should be glad to know more about it. It has been mentioned before as a honey-plant, but I don't remember what was said about it.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

Question No. 13.—What kind of surplus comb-honey arrangement do you use? State why you prefer it to all others.

We don't raise comb honey.

E. FRANCE.

One and two pound sections. I prefer it, because trade demands it.

MRS. L. HARRISON.

I have never raised enough comb honey to have any special arrangement that I prefer to all others.

O. O. POPPLETON.

The Doolittle, because it is easier to manipulate, and we can contract it to the capacity of the colony.

PAUL L. VIALLO.

Heddon case. Can not, as I am not sure that I do. I think something like the Armstrong T case might suit me better.

A. J. COOK.

We use the broad frames, simply because we raise mostly extracted honey. If we were to raise comb honey exclusively, we would use Foster's or C. C. Miller's or Heddon's crate. DADANT & SON.

First, wide frames one tier of sections high. Second, because it combines more good qualities and fewer poor ones than any other arrangement—in my opinion.

G. M. DOOLITTLE.

The T super. I think I can secure an equal amount of honey in as good shape with less time and labor than with any other arrangement with which I am familiar. It would not surprise me if it would be rejected in its turn for something better.

C. C. MILLER.

I am using large numbers of one-story reversible wide-frame supers, and also many tin T non-reversible surplus cases. The T supers are good and cheaper. At the same price I should prefer the wide-frame super every time; but the difference in cost in constructing 1500 is quite an item. Reversing surplus honey amounts to but little at best.

JAMES HEDDON.

I am using three different kinds. I have but little, if any, choice between Heddon's broad frame reversible, and Armstrong's T super. I like them both, but think both, as well as any other kind, would work better where there is less propolis. I prefer them because the sections are more readily removed than from other kinds.

DR. A. B. MASON.

I use the broad frames. I prefer them because I have got used to them, and dislike to "fly to other ills I know not of." The arrangements which are more popular just now would not, I judge, increase my yield of honey. They might decrease the labor somewhat, but probably not enough to pay the expense of changing.

E. E. HASTY.

I use Mr. Heddon's old style of surplus case. I prefer it because it is simple, cheap, and strong; takes only one tier of sections, allows of the tiering-up system, and the sections are easily put in place and more easily removed. Some call this Moore's case. Mr. Moore's *crate* was simply a *crate*, not a *case*; it was only a shallow crate in which sections could be placed. It required an outer covering, and could not be tiered up. Let us "give honor," etc.

W. Z. HUTCHINSON.

Question No. 14.—Do you know positively, from actual experiment, that you have obtained any real relief from a bee-sting remedy?

No.

PAUL L. VIALON.

No, and I have discarded all the so-called remedies.

O. O. POPPLETON.

I do not, and think the cases where others do are very rare.

R. WILKIN.

Yes, from water. It takes off the fever, and if kept on a long time it helps dissolve the poison.

DADANT & SON.

No. I never did. If a person or child should be badly stung I would put him into a wet-sheet pack.

MRS. L. HARRISON.

I never use any. If it hurts too bad, groan once or twice and dance a little, then go about your work with a will, and it is soon a thing of the past.

G. M. DOOLITTLE.

No. To one unaccustomed to bee-stings, however, I should always advise the application of mud, cold water, or something to *cool* the parts.

C. C. MILLER.

I do not. Bee-stings never affect me enough to amount to any thing. It is breathing bee-poison that affects me so badly.

JAMES HEDDON.

My students are sure that ammonia gives relief. Ice-cold water also allays pain. A strong decoction of cheap tobacco, applied at once, also gives relief, and tobacco is much more wisely used to kill pain than people.

A. J. COOK.

Yes, I do. First, get the sting out as soon as possible, then wet the wound as quickly as you can. Rub the place while it is wet, to get the poison out as much as you can; then wipe the place, after which let it alone. The best remedy is to get the sting out before it has time to work in the poison.

E. FRANCE.

Yes, I do know positively that I have obtained relief from the use of tincture of plantain. Pick the green leaves, put them in a glass or earthen dish, and cover with alcohol. Let it stand a day or two, then drain off the tincture, and bottle. Apply this to the wound as soon as possible. I seldom use it unless stung near the eye.

W. Z. HUTCHINSON.

During a recent visit to friends in New York, one of my brothers, an old man, said that the oil of cinnamon, if applied immediately, would prevent swelling. In his case it proved true. He keeps a few colonies and was stung while I was there, on the nostril, and the swelling nearly closed the eye on that side, the oil not being at hand. Being stung at another time on the face, and the oil being applied at once, there was no swelling.

DR. A. B. MASON.

Yes, sir'ee. There are many remedies—in fact, several families of remedies—that afford one real relief. The inflammation of a sting is very much like a fire. It must have air. It gets its air (oxygen) from two sources—from the blood, and through the pores of the skin. Any thing that lowers the circulation of the blood, or that closes the pores of the skin in the vicinity of the sting, affords real relief. The reason remedies so often seem to be worse than useless is very easy to see when once you catch on to it. The oxygen which enables the sting to blaze, more than half of it comes by way of the blood. The blood is driven partly by the muscles of the heart, and partly by the little muscles of blood-vessels themselves. Turning the mysterious nerve force of the brain upon any spot causes the little muscles last mentioned to greatly increase their action. The result is, that twice as much blood passes through that spot as before. Your remedy may be all right; but directing your mind to the spot continually is doing twice as much harm as the remedy is doing good. The same thing happens when the house gets afire. A little water is thrown on (very good, as far as it goes), but doors and windows are opened in every direction, letting in air; and the net result is, that the fire which would have smouldered for hours if let alone, burns the house up in half an hour. Yet water is a real remedy for fire for all that. Whatever you do for a sting, you must support it by keeping calm, and thinking of something else. A piece of tissue paper 3 or 4 inches square stuck on the spot with good strong mucilage is one of the best of remedies. Thick honey well daubed on, without the paper, does very well. Of course, the old bee-keeper is usually so well pickled in stings that he needs no remedy.

E. HASTY.

Well done, friends. I am exceedingly obliged to you all, and especially to our bright, keen, close-thinking friend Hasty. He says he has not only discovered what I have so long told you, that looking at the spot, and thinking about it, makes it worse, but he ventures an explanation of this phenomenon. Our good friend Doolittle also tells us we can dance around and groan, if we want to. It always seems to help me to twist around and make wry faces, and relieve my feelings by talking back to the little rascals; but I never knew before that anybody else was in the habit of doing so. Imagine our great big portly friend Doolittle taking a little dance all by himself out in the apiary! I wonder if it has ever occurred to him that dancing is usually considered not quite the thing for a good orthodox church-member like himself. I presume, however, there would be no objection to dancing all alone by one's self. Friend Hutchinson is very positive that he has obtained relief from the tincture of plantain. But the thing that troubles me is, how did anybody discover that the tincture of plantain is good, when there is such a great multitude of herbs to make tinctures from? How did anybody happen to think of plantain? or is the virtue in the alcohol, without any plantain about it? I know that plantain has been recommended for bee-stings, but I have chewed it to see if it had any astringent or alkaline or other property, but I could discover nothing peculiar about it. I know this strikes right squarely on the whole question of using herbs for medicine; and I confess I have never had any satisfactory proof that herbs ever do any good whatever. During my last visit to Prof. Cook's I asked him the question point blank, "Friend Cook, do you believe that catnip and other like herbs have any virtue whatever in curing disease?" Please remember that Prof. Cook teaches physiology right straight along, every day, to his pupils; and his reply was to the effect that catnip and other similar herbs neither do good nor harm. Of course, the hot water taken with the catnip relieves pain many times. Prof. Cook says his students are sure that ammonia gives relief. Well, my own wife is also sure that saleratus and water is good for bee-stings, and Caddie presumed to have an opinion directly against her papa, in this very matter. She had used saleratus and water on a bee-sting, and it got better, therefore saleratus and water must have made it better. We all know the efficiency of tobacco in killing insects, and therefore it may be that a quid of tobacco laid upon the flesh has sufficient poison in it to produce some effect on the bee-sting; but I hope Prof. Cook will excuse me for saying that I am not satisfied that even tobacco affects a bee-sting one way or the other.

Question No. 15.—Do you make it a practice to wear a veil when at work among the bees? If so, do you think it advisable to dispense with its use at any time?

I always use a veil. I would advise no one to work among bees without it. PAUL L. VIALON.

Yes. Wire hat. Always have cause for deep regret when I leave it off. MRS. L. HARRISON.

I do when the bees are cross. I dispense with its use during the honey-flow. W. Z. HUTCHINSON.

Yes, always. I don't want bees crawling over my face and neck, even if they never sting.

G. M. DOOLITTLE.

Not usually; but when the bees are cross. At such times it certainly is an advantage, for it saves the lives of the bees.

DR. A. B. MASON.

Yes, almost always. I do not think it is advisable for any one to leave off the use of a veil who suffers as much pain from bee-stings as I do.

O. O. POPPLETON.

When the bees are not gathering, but not during the harvest. I should advise the young bee-keeper to use a veil till he feels easy to leave it off.

A. J. COOK.

Yes. I often dispense with its use, but never want to be without one on my hat, ready to pull down at a moment's warning. If I had only a few colonies, I should care less for a veil.

C. C. MILLER.

Yes. We dispense with its use when the bees are quiet, but have it always on hand. If you wish to make bee culture practical you must be prepared to stand your ground with the most vicious colony, and a few stings in the face will vanquish the boldest apiarist.

DADANT & SON.

I scarcely ever wear a veil when at work with the bees. We supply veils for the boys and for visitors. After one of the boys has worked for us two years he scarcely ever puts on a veil. In hot weather veils are burdensome and warm, and obstruct the eyesight. I would rather be stung a few times than wear a veil. Some days I don't get stung at all.

E. FRANCE.

I usually wear a veil—in desperate cases a Ku-Klux robe that goes "all over the child." If one is well inured to stings, the veil may be laid away while general good nature reigns among the bees—also while working under a tent, which seems to impress the bees in such a way that they seldom attack. Beginners who would be disabled from work by a sting in the face had better not expose their faces.

E. E. HASTY.

I do. I know that a part of the time they are not needed; but as I use a strong black bobinet veil, stitched fast to a special bee-hat, and that veil is of such material that it obstructs the vision so little that I almost always wear it. When among bees in the country I have ridden miles with the veil on, forgetting to remove it. Use or non-use depends upon proper quality and adjustment.

JAMES HEDDON.

In earlier life I rarely used a veil. My long hair and beard protected my ears, neck, and most of my face; then by holding my face downward a little, stings in the face were mostly avoided. If a bee got tangled in my hair I could easily crush him with my thumb and finger. Later, since I wear spectacles, when a bee attacks me in the eyes I am liable to either damage my glasses or get a sting while in the act of taking my glasses out of the way; consequently I wear a veil, and cut my hair short like other folks.

R. WILKIN.

MYSELF AND MY NEIGHBORS.

We then that are strong ought to bear the infirmities of the weak, and not to please ourselves. Let every one of us please his neighbor for his good to edification.—ROM. 15: 1, 2.

“**M**R. ROOT, sha’n’t I wring this little hen’s neck? In spite of every thing I can do, she will roost on the harnesses.” The above remark came, one evening, from the man who drives the horses, just as he was finishing up his chores for the night. It was a little brown-colored hen that came into the stable from some place, nobody knew where, and she did not seem much afraid of horses or humanity, for she just made herself at home, and seemed to take it for granted that she had as good a right to go where she pleased, and do as she pleased, as anybody. Now, on general principles I am never much in favor of wringing anybody’s neck as a means of teaching them wholesome lessons; that is, unless I am greatly provoked, and at such times I am sure it is not best for me to do much of any thing or to say much of anything: so on the present occasion I, as a matter of course, replied:

“No, no, Mr. Somers; don’t wring her neck. Let me have her.”

I went up to her as she sat on the harness, thinking that, if I were very careful, may be I could catch her before she flew away; but to my surprise she let me pick her up, without any squalling or kicking or scratching. I don’t know but she uttered a few quiet notes, as much as to say, “There, take care; don’t hurt me. I have not been doing any thing out of the way, that I know of.”

From that moment forward biddy and I became fast friends. She was a little bit of a fowl—that is, compared with my Brahmas, and she was so trim and neat, light and graceful, that I wondered I had never admired her before. I took her up and put her among the Brahmas. Next morning she helped herself at the feed-hopper, drank at the fountain, surveyed the premises and their owner, as much as to say, “Well, I think on the whole I would rather live here than down among the horses.”

She very soon showed the rest of the fowls that she expected to have her own way; and it was not very long before she decided that the poultry-netting inclosure was a little too cramped for a hen of her disposition and abilities, so she spread her hawk-like wings and flew over the fence as if she were always used to it. After the night I saved her life, she seemed to conclude that she and I were to get along pleasantly together, and she would soon let me pick her up almost anywhere, even out in the lots. She would sit on my hand, and sing as complacently as could be while I carried her around in the house and over to the neighbors; but when even little Huber attempted to stroke her soft glossy back, she picked him on the hand as if to say, “No, no, sonny. I don’t allow everybody to pat me on the back.”

Now, I have introduced this hen to you this morning, principally because she is such an exceedingly *business* hen. She com-

menced right straight to lay eggs; and when she got a nest full she gave me to understand as plainly as words could tell it, that she was going to sit and hatch some chickens, and that for the time being we two must lay aside foolishness. So I let her sit, and she hatched almost every egg. How she did scratch around and hunt up food, and coax and tease for it when it was not to be found readily! The chickens did splendidly. They could not well help it; but before they were nearly large enough to be weaned, according to ordinary hen sense, she began to get restless, and a day or two later I noticed her quite a little way off from her chickens, with a very demure and innocent air, receiving attentions from a smart young Plymouth Rock cockerel. They two became great friends, and promenaded the lots together. They seemed to have a great deal of talking and visiting to do; and when night came she persuaded her admirer to leave his accustomed roost in the fowl-house, and take a seat beside her, on the top rail of the cold-frame I have pictured to you. The sash being entirely off, nothing but the rail remained. She chose this for a roosting-place during the summer nights. No cramped up poultry-house would answer her notions of free air and health. Lest there might be enemies prowling about, she chose a roosting-place close by the factory; and, in fact, this hen has always seemed to show her good sense in every thing she undertakes. Pretty soon another nest was started. This time it was in a barrel of rotten wood where the boys in the apiary replenish their smokers. I told the boys to let her remain. She finished her laying of eggs, and then commenced to sit. I remonstrated with her, that it would be November before the chickens would be hatched; but if you could have seen her coax and tease and beg for permission to carry out her project of winter chickens, you would never more doubt that a hen can coax and tease. She poked the eggs under her, picked at my hands, settled herself down over her snow-white treasures, and fairly begged to be let alone. I finally let her have her own way, more because she was such an odd little genius than because I wanted any more chickens. Now, although the location of the barrel was not a very favorable one for the frosty nights of October, she hatched—how many eggs do you suppose? Why, every egg, of course. That is about the way she always does where she can lay them herself. And, by the way, I want to say to my friends who have incubators, and want fertile eggs, just let the hen go off by herself and steal her nest, and she will lay eggs that will hatch. I don’t know but one reason is, that a hen with a stolen nest usually has a particular favorite among the flock of male birds; and where a couple pair off together that way—going off through the fields and lanes alone by themselves, you may be pretty sure of getting fertile eggs.

Well, this little business hen of mine has been laying eggs and hatching chickens ever since I took her part and saved her life. Winter or summer, she has no vacation. As

soon as it will barely do to wean the chickens, she is off and happy, starting another lot. When she is sitting, if she does not find food handy so she can get back to her nest quickly, she will run up to me in the greatest hurry and flurry, and commence to sing. Did you ever know of a sitting hen before, that would sing? I always know what that means, so I get her some grain and water, which she takes out of my hand, and then off she goes on a run to her nest. It has just occurred to me lately, that I should like to get a piece of ground, say three or four acres, and plant her in the middle of it, and let her people it with fowls. In fact, I should just like to see how many she *could* raise in one year, all by herself. As her pullets are very much like her, and commence laying very young, I think if I should commence the first of January I could get a pretty big flock by the next January. Her chickens, every one of them, show that restless, busy spirit. I forgot to say, that the brood that was hatched in November was put into the greenhouse, under one of the benches; and as I wanted to try raising chickens without a mother, I carried her to another part of the premises, with the other fowls. As she had no means of finding her chickens, she seemed to conclude that what could not be cured must be endured; but next morning, as soon as she saw me she ran to me, jumped up on my hands, and looked me full in the face, interrogating me as plainly as a human being could, almost, as to what I had done with those downy chicks of the night before. She peeked under my coat, looked behind me, over my shoulder, and everywhere, thinking they must be somewhere in my possession. They didn't winter very well without a mother; for, some time in January they were evidently going to die unless I gave them different quarters. The greenhouse was too warm, or the feed was not just right. My wife begged to have them put among the other fowls, and we did so; but they were a sorry set of poor "orphelings" for quite a time. Somebody suggested that the chicks wanted some medicine. Now, I once heard Neighbor H. say that the best medicine in the world for horses is grass. Turn them out in the lot and let Nature and grass do the curing. Well, the best medicine, in my opinion, for poultry, is bread and milk. So my wife undertook to cure the "orphelings" with bread and milk, administered three times a day. Did they die? Not at all. They are now the plumpest, neatest, and smartest pullets among the whole flock; and one of the roosters that looks exactly like his father, and behaves almost exactly like his mother, is one of the plumpest and neatest on our grounds.

Well, a few days ago, after the frost killed the coleus-plants on our bed on the lawn right in front of the house, I directed Mr. Walker to replace the coleus with some beautiful plants of fringed parsley. He fixed the bed up in splendid shape, as most old-countrymen know how to do; but before night, my pet hen had got into it, and—oh my! but hadn't she made ruin in just one short hour? Mr. Walker worked

an hour or more in setting the plants back in their places, and smoothing off the ground, and raking the soil back off the lawn, and we promised to watch that hen; but before night she did it again. Now, I felt as if I could not give up my plan of having an ornamental foliage bed made of parsley, and so he fixed it up another time; but this irrepressible biddy must have been in the rose-bushes while he was doing it; for as soon as he got back from putting his tools away, she was sending the dirt in showers all over the lawn again. Why, I didn't know it was possible for any thing in hen shape to make the dirt fly as she made it fly on the coleus-bed.

"Wring her neck! wring her neck!" came from all sides; but I said, "No, no; we will fix her a house down on the creek bottom, among the great banks of beautiful fine soil where the celery has just been removed, and we will let that hen scratch and scratch until she is happy and satisfied. Yes, we will take her numerous progeny, that threaten to cover the farm at the present rate in the near future, and carry them down there to help her fine up several acres of soil."

Well, dear friends, the house is builded—or, rather, digged—for my pet biddy. It has a sleeping-room, a dining-room, a nest-room, and a drinking-room, and she and her progeny are just now in the dining-room under the sash, enjoying the rays of the morning sun while I write, unless, in truth, they have digged out and dug their house down. The materials for the house were a large hog'shead, a barrel, two nail-kegs, and a box; and we made it warm by piling up soft earth all around and over them. In fact, we don't expect an egg to freeze, or their drinking-water to freeze, during the coming winter; nor do we expect there will be any frozen combs or frozen toes. In our next issue I will try to tell you about my poultry-house, made of a hog'shead, a barrel, and nail-kegs, for it took only three or four hours to build it complete.

Now, what has this long story to do with neighbors, think you? Well, the moral may not be very apparent, but it lies somewhere in this line: When a neighbor vexes you, and tries your patience, don't, I beg of you, think of wringing his neck. Maybe the fault is yours, and may be his queer ways and eccentricities may be of great value if you take him right. This hen and her brood have furnished me a great amount of eggs and chickens, and she has not taken very much food either, because she rambles about and picks most of it up. When biddy dug the beds up and made the dirt fly, it seemed a grievous trouble; but who can tell how much good she and her progeny may accomplish between now and gardening time next spring, down on the creek bottom? They will fine up the dirt, get the worms and insects and bugs, and produce a large quantity of valuable manure already pulverized, and stirred up and digged into the ground; for you see I expect the ground to remain dry where they are. We have banked it away up high, and

ditched it to carry off all surplus water. Now, then, a neighbor that annoys you fully as much as that hen and her brood annoyed me by scratching, may be utilized to do yourself and the world a great amount of good; and the line in which you are to work for the accomplishment of this end is through Christ Jesus, as expressed in the language of our text.

A LATE HONEY FLOW FROM ASTERS.

DO WE OFTEN HAVE ONE AS LATE AS THE MIDDLE OF OCTOBER?

TO-DAY is warm and sunny, after three hard frosts. I am very much surprised at the way the bees are still working, and storing honey. To-day they are working almost as well as they did through the honey-flow of last June, when white clover was in bloom. I have a nucleus of bees with three frames. They have glass on two sides, and I have been able to watch them closely. They are storing honey very fast, and since yesterday I see they have sealed over considerable. They seem to fill the cells nearly full, and let it remain for several days that way, then fill up and seal over. I know of what I speak when I say they are gathering honey as fast as they have at any time in the early season. There is one thing that hinders them from filling the hives right up—cool evenings and mornings, and a few days have been too cold to do much good. Another drawback is the shortness of the working hours. They do not get more than half as many working hours in as they do in the month of June. I have never known such a honey-harvest in my experience in the bee-business at this season of the year. It is now October 17. The bloom I spoke to you about came out in the last week in September, perhaps a little earlier, and has now begun to decline; but if the weather keeps warm the bees will have another week to reap this harvest.

I have just returned from a visit to the woods and neighboring fields. I find a wonderful supply of the wild aster—such a crop I don't think I ever saw before, and you ought to see the bees on it. It would do you good just to roam over the old pasture-fields and ravines where it has been about half cleared out, and then suffered to grow up in weeds, to see the busy bees on this flower. It is a flower that secretes nectar all day—not a morning supply and then gone. The bees continue to work on it as long as it is warm enough. Some days, when it was rather sultry, they continued till dark; but at this time of year it gets a little cool toward night.

As to my bees, I am better pleased with them this season than before July, August, and September of this year—the first part of July and last week of September excepted. I hope we shall have one week yet of good weather. Have we had a honey-flow anywhere else as late in the season as this before?

W. S. JONES.

Central Station, W. Va., Oct. 17, 1887.

Friend J., I would go a good many miles to see such a yield of honey in October, as you speak of. I remember passing, years ago, through the fields quite late. It was after severe frosts, I remember, but I was

astonished to see a small swarm—it looked almost like a little swarm of Italians—hovering over a single plant covered with blossoms. It was such a sight that I thought of taking the plant up and of trying to propagate it. I did not know what it was at the time, but I afterward found out that it was aster, and we made some attempts at domesticating it, but it didn't take well to cultivation. I don't suppose it would pay in dollars and cents, but it certainly would be worth something to a live bee-keeper, to see about a quarter or an eighth of an acre roaring with bees away along in October. Your statement revives my enthusiasm on the subject. As there is such a great variety of asters, I think it would pay well to get our roots or our seed from some of the very plants that yield honey largely very late in the season. The aster has yielded bountifully this season in almost all localities, as you will see by the reports.

MORE ABOUT THE ASTER.

ITS VALUE AS A HONEY-PLANT; ALSO THE PECULIAR ODOR OF THE HONEY AT TIMES.

ABOUT the 1st of October I noticed a very offensive smell in my apiary of ten hives. I concluded there was something wrong—probably foul brood, as I had never seen bees affected with that disease. It smelled like dead bees, or moldy, or soured, honey. We could smell it ten steps from the hives, on a still evening; but on examination the bees were strong and lively, and in good condition. They were working strong, and gathering honey and pollen from the weed herewith inclosed, called here by some the “last of summer,” and I believe they stored more honey from it than from any other flower we had this summer (it being a very poor season) except linn.

It still looks white with bloom after a hard frost on the 22d, with the thermometer at 26°; but they gathered pollen, and I suppose honey too, after several frosts, and had considerable brood and even small larvae, a week ago. I noticed no eggs. The flower, sent, blooms from about the 15th of Sept. until hard frosts kill it. It grows from two to three feet high, and is a very common weed here. I can't imagine any thing that caused the bad smell, except the honey from this weed. The bad odor has now disappeared, and the honey has no bad taste.

A. S. HILL.

Tygart Valley, Greenup Co., Ky., Oct. 24, 1887.

You are right, friend H. This peculiar odor does come from this particular plant, and the plant is the common aster of our fields. The specimen that blossoms so very late is a small-flowered variety. I have noticed this same smell, and I have felt pretty sure it came from asters, because nothing else was in bloom at the time; and when I walked among the plants in the fields I felt sure I could detect an odor quite similar. At times one would think the honey was all in a ferment, like the contents of a barrel of feed for the pigs during a hot day. I don't believe this occurs every year, however; but it may occur whenever aster honey comes in profusely.

TOBACCO COLUMN.

ONE WHO HAS USED TOBACCO FORTY YEARS; HIS IMPROVEMENT SINCE HE QUIT TWO YEARS AGO.

FRIEND ROOT:—In September 1st GLEANINGS you ask to hear from those who have abandoned the use of tobacco, after having quit—their condition physically, morally, and financially. Perhaps you remember that I said to you I had been a slave to tobacco for more than fifty years. I do not know how old I was when I began chewing, but perhaps not more than five or six years old. I know it was when I was considered too young to go to school, for my first teacher tried to hire me to quit, and gave me a silver dollar.

I have read GLEANINGS most of the time since 1882. Your Home readings and Tobacco Column always attracted my special attention. The more I read, the more I was convinced that the use of tobacco was useless, and morally wrong, because it was expensive, troublesome, filthy, disgusting to nice people, defiling to the house of God, and had a tendency to generate many diseases. It is now a few days over two years since I last tasted tobacco in any form, Sept. 8, 1885. Had you seen me before that date, and see me now, I opine you would not hesitate to say that I am much better off physically. I weigh 15 to 20 lbs. more, and have much better health. While using tobacco, I was subject to headache, heartburn, piles, nervousness, and occasionally vertigo, none of which trouble me now. I suppose my tobacco cost me, for forty years, 3 to 5 cts. per day, say 4 cts. average. This is for chewing and smoking. I used the pipe evenings and mornings in winter; very seldom in summer. Calculate 4 cts. for 365 days, \$14.60. Multiply by forty, and we have \$584—enough to buy a splendid home in this country, for a one-horse man.

Now, as to whether I am bettered morally or not, I will not pretend to say; but I will say that I try often to induce others to quit; and within a few weeks past I have heard one friend say, "I have quit." A few days ago I heard from a lady friend who has quit. This lady chewed equal to some men, and made no secret of it. Her husband did not use it, but furnished her what she wanted. I talked to both these individuals on the subject, but don't know my talk had any thing to do with their quitting; but I am satisfied to know they have quit. Another old man of my age, or older, has also quit, but not through my influence, I suppose, for I do not know that he has heard that I have quit. You said in one of your Home talks, perhaps in 1884 or '85, "It is an easy matter for any person to become a Christian if he wants to be one" (this is the substance); so I argue any one can quit the use of tobacco or whisky if he wants to.

Did I quit without an effort? No, sir, I didn't; but I wanted to quit, and by the help of the Lord I was determined to do it. Even now, after two years, I dream of using tobacco; and in my dreams, so positive am I that I am chewing tobacco that I resolve there and then to pay Mr. Root for that smoker. But chewing tobacco in dreams does not obligate me to pay for the smoker, does it? I told you once you need not expect to get pay for that smoker, and I here reiterate it. J. M. HARRIS.

Cedartown, Ga., Sept. 10, 1887.

We thank you, friend H., for your very valuable testimony, which I am sure will strengthen and encourage others to undertake the task. And so, my good friend, you are honest, even in your dreams. I think there is a good point here. Shortly after my conversion I used to dream of going back to the old life; and over and over again I would wake up and thank God that it was but a dream. Sometimes in my dreams the remorse because I felt I had been led away again by Satan was terrible. But these dreams were the means of strengthening me; for the memory of how bad I felt made me more earnest in saying to Satan, "No, no; I never want any thing, purchased at such a price." Well, by and by I dreamed of getting down on my knees, and wrestling in prayer that God would deliver me from Satan's wiles, and this ended it. Satan seemed to have abandoned persecuting me in my dreams, when he found that even there I was a praying man. "Behold, he prayeth."

Please send my neighbor, W. B. Marshall, a smoker. He has quit using tobacco. If he commences again I will see that you get pay for your smoker.

Horatio, Ohio, Sept. 29, 1887. NOAH THOMAS.

I have quit the use of tobacco, having used it 40 years out of 54. If I should use the weed any more I will send you the money for the smoker you send.

Sharon, Wash. T. GRANT S. RODERICK.

A friend of mine, Mr. J. J. Hughes, has quit the use of tobacco. Please send him a smoker. If he ever uses it again I will pay you for the smoker.

W. H. COTTINGHAM.

Pleasant Valley Mills, Ky., Sept. 26, 1887.

I have quit the use of tobacco (smoking) for some time, and so I for one claim a smoker. If I ever use it again, I will pay promptly for smoker. I am on my second year with GLEANINGS, and like it more and more.

GEO. W. WALZ.

Scranton City, Iowa, Sept. 3, 1887.

I began the use of tobacco when about seven years old, and was an almost constant user for 14 years till one year ago, when I gave it up. If I am entitled to a smoker, send me one; and if I ever use tobacco again I will pay you for the smoker.

Colgate, Wis., Aug. 22, 1887. A. L. GREENGO.

ONE WHO WISHES TO CONTRIBUTE TO THE SMOKER FUND.

Please find inclosed two dollars—one to renew my subscription for GLEANINGS, the other to be credited to the smoker fund. I feel that you should have some help in this good work that you are doing. When you first made the offer of a smoker to any one who would quit the use of tobacco, I was one among the first to claim one, and I have never touched the weed since; but now I feel that, instead of being paid to give up such a filthy habit, the pay should come the other way. I fully realize the great good that you are doing. May God bless you, and may assistance come from all directions to help carry it on.

M. G. CONDEN.

Clinton, Mo., Sept. 14, 1887.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE BINGHAM VERSUS THE CLARK SMOKER.

WE have given the Bingham smoker a pretty thorough trial. Our boys have used it constantly in the apiary every day right alongside of the Clark. Sometimes we like the Clark better, and sometimes the Bingham. Each possesses points of merit not possessed by the other, and so the verdict has varied during the season.

In the course of my remarks I shall discuss a few of the merits and demerits of each. First, let us discuss the Bingham. The latter has one quite bad feature which I will now illustrate by the following example:

Several days ago, as I was strolling up the avenues in the apiary, I saw Mr. Spafford, with his head down in the hive, evidently pawing something out.

"Hello!" I said; "what is the matter?" Without very much explanation he replied, "This is the third time this smoker has acted this way to-day."

"Oh! the top fell off, did it?" said I, as I saw the smoke rolling up from between the frames.

"Yes, it has done this trick several times, and let the hot coals and cinders down among the bees; and, as you see, it is not an easy job to get them out again."

I then observed that the smoker-top was somewhat battered.

In order to replenish the Bingham while hot, we find it is necessary to strike the cone-top one or two smart blows right and left, until it falls off, as it is too hot to be handled ordinarily when in use. After the barrel is filled, we have to pick the top up like a hot coal, and jam it into place. This alternate removal and re-adjustment of the cone-top as above described, caused it to become somewhat battered in time, and consequently ill fitting.

Several times, when Mr. Spafford had filled the smoker and crowded the top as tightly as he could push it on, just as he was in the act of shooting the smoke over the colony the top would drop off, precipitating the cinders over the frames. We have bent the rim back into shape so as to make it fit better, but even then we have found the top was liable to come off just when we particularly desired it not to. With the Clark, however, there is no danger of the whole contents of the smoker barrel dropping out on the bees.

I want to state one more objection against the Bingham, and that is, that the fire-box, in my judgment, is not secured to the bellows as firmly as it might be. Indeed, it seems to me our Abonia friend might get up a simpler, stronger, and better device for accomplishing the purpose above named. We have had some little difficulty with the fire-box becoming loosened from the bellows several times during the season; and although we have re-secured it on as many times, it soon works loose again. It may be we are big bunglers out here, and

use things uncommonly rough; at any rate, the foregoing has been our experience.

Notwithstanding the two objections which I have named above, I can not help but like it for the following reasons; viz.:

First, in action it is instantaneous. A slight movement of the bellows causes the smoke to puff out in a gentle whiff. Second, it sends out a strong, dense volume of smoke; and a very little working of the bellows starts the smoke immediately. Third, there are no tubes to become clogged with soot. Fourth, the construction of the bellows-valve is such that it will not fill up so as to "wheeze." Fifth, I like a cylindrical fire-box better than I do a conical, because it is easier to get long stuff into. In general, the hot-blast principle gives rather denser smoke.

Having now considered some of the good and bad features of the Bingham smoker, let us discuss the Clark in the same way. I have already hinted at some of the defects in the latter, the most obvious of which are these: First, the blast-tube, as now constructed, after continued use, will become clogged with soot, unless cleaned often. This objection, however, we hope to remedy before another season. Second, after several months' use, the valve, in consequence of sooty accumulations, sometimes "wheezes," instead of letting the air in freely. This, like the former defect, we hope to correct. The points of excellence in the Clark, as we see them, are as follows; viz.:

First, it is cheaper than the other smoker. Second, the sliding door permits easier filling, and likewise easier lighting. Simply a lighted match, placed opposite the hole made by the sliding door being partially closed, will light the smoker. The operation of igniting the fuel in the Bingham is more difficult, so it seems to me. Whenever I go out in the apiary and want to examine two or three colonies, I always pick up the Clark, because I can light it and get it well going in less time than it takes me to tell you. Third, the Clark is emphatically a long-range weapon. It will shoot a blast of smoke a long distance—rather further than the hot-blast smokers. Fourth, as the blast of air does not pass through the fire, it has little tendency to throw sparks or fire. Fifth, the fire-box is heated but very little. In the Bingham I have had the flames shoot out six or eight inches from the nozzle, and at the same time the fire-box was almost red-hot. Now, having stated the good and bad features as they occur to me in both smokers, perhaps you will inquire which smoker I would prefer. Candidly, I don't know. They are both good smokers. If the bees are hybrids, and are very cross, I think I should rather prefer the Bingham; but if the bees are gentle, like the Italians, and I am desirous of getting my smoker ready just as soon as possible, I should pick up the Clark.

THE TACK SYSTEM, AND BY WHOM FIRST SUGGESTED.

In last issue, in speaking of the use of tacks to indicate the condition of the colony, I stated that I borrowed the idea from

some one whom I did not remember. It now transpires that I got the suggestion from an editorial in the *Apiculturist*. Mr. Alley, in calling my attention to this fact, writes that he has used this tactic system for years, and that it has given him excellent satisfaction. From my present knowledge of it I am well pleased with it, and unless I discover something better I shall use it in queen-rearing next season, if (ah! there's the rub) foul brood should not favor us with another visitation. By the way, if any of our readers know of a better system, different from the slate tablets and tacks for recording the condition of the hive, let us hear from you. It must be a record simple in plan, quick in operation, and one which will be intelligible a short distance from the hive, as well as in its immediate vicinity.

D. A. JONES'S ISOLATED FOUL-BROOD APIARY FOR EXPERIMENTAL PURPOSES.

From the *Canadian Bee Journal* of Oct. 26, page 634, we are informed that our energetic friend Jones, the past season, established an apiary in an isolated locality for the purpose of experimenting with foul brood. The location is ten miles from his home, and a man is kept in this hospital yard the entire season, during which time it is visited frequently by friend Jones. Among other things, in speaking of carbolie acid in treating foul-broody colonies, he says:

It seemed to entirely prevent the spreading of the disease, but it did not seem to cure it, although it apparently did not increase, and in many instances appeared to decrease; and from appearances we should not doubt that, commencing this treatment early in spring, and continuing it all summer, it might be cured; because where the spraying of the combs and bees was carried on and phenol given, the bees were more inclined to clean out the dead larvae; but it does seem like a waste of time, as far as our experiments have, gone unless it is to prevent the spreading of the disease.

The italics are mine. The facts, as stated above, agree exactly with my experience; and at different times I have mentioned the fact that, while carbolie acid failed to *cure* the disease, yet it evidently *prevented its spread*. This is sustained from what I am able to gather from correspondence, and from both American and foreign journals. In some cases I have seen reports where it effected an absolute cure. Certain it is, out of a great many colonies I could not cure a single one by spraying with carbolie acid alone. Though repeated sprayings were administered the whole season, sooner or later it became evident we should have to go back to the Jones plan, which we did at last. In the same article, friend Jones says further:

The fasting plan, in our experience, is the quickest, safest, cheapest, and most perfect treatment that I have been able to find.

You are just right, friend Jones. The only plan which I have found that would effect an absolute cure in a short time, is your plan, or at least one embodying the fundamental principles of it; but if foul brood should break out in our apiary next spring, I would use the fasting plan, or a modification of it, accompanied with the use of carbolie acid, the latter to keep the disease from spreading, and the former to wipe it out.

HONEY—HOLDING OFF FOR BETTER PRICES.

SOME IMPORTANT SUGGESTIONS FROM FRIEND MUTH.

FRIEND ROOT:—Almost everybody is convinced of the fact, I suppose, that prices of honey, as well as those of other products of the farm, have been too low for the last five or six years. Some of them have been and are now below the cost of production. Better prices are desirable. It is the good fortune of producers and dealers, if the prices of honey advance and the advance is sustained. But there is a certain limit, and it will be a mistake if extravagant ideas are entertained by producers. Manufacturers and consumers commenced to use honey extensively, because cheap, in the place of other sweets, and they will drop it again if prices exceed their views. We have been taking pains, perhaps second to none in the country, to introduce extracted honey to manufacturers, and we thought once that we had succeeded in establishing a demand for the largest part of the honey produced in the Southern States. The cheaper glucose, however, spoiled our expectations. Lower prices followed, and a consequently better demand for honey, besides new customers being added in different branches of business. Your prices are, to the greatest extent, the result of a good demand; and every dealer knows that better profits are, generally, synonymous with an advance in values. My sentiments are, therefore, not so much of a philanthropic as of a selfish nature when I speak in favor of better prices. But it would be a calamity for Southern bee-keepers if the demand from manufacturers should be lost again because of a mistaken idea. Although the present scarcity of honey is a change for the better, to the best of my judgment, we should not forget that a short crop of extracted honey is an exception to the rule, and that all were complaining of an overstocked market up to a few months ago.

Extracted honey has fairly begun to be a staple article, different from comb honey, which will remain a fancy article only. It will be consumed largely when plentiful and cheap, and less will be consumed when the contrary is the case.

Cincinnati, O., Oct. 22, 1887. CHAS. F. MUTH.

No doubt you are right about it, old friend; and since we have got up to 8 cts. for basswood and 9 for clover honey, we have had more offered than we need, and we are not making many sales either. One difficulty in the way of making sales is, that before we can sell the honey we are obliged to put it up in smaller packages than it comes in when we buy it; and the cost of these packages has to be added to the cost of the honey; therefore we can not retail it out for less than from two to three cents above what we pay by the barrel. I presume we shall be obliged to go back on our offer a little—say 7 cts. for basswood and 8 for clover. I think it quite desirable that the old honey be pretty much all moved off and used up before we begin to get the new. And now an interesting question comes up: Where will the first new honey come from—for instance, new clover or basswood honey? How far south do clover and basswood flourish? Who can enlighten us?

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 1, 1887.

He that loveth God loveth his brother also. - 1. JOHN 4: 21.

OUR subscription list is still increasing. Our present number of subscribers is 7674. Thanks.

SEED OF THE MELISSA, OR BEE-BALM.

SINCE our article on page 816 was printed, we have received the following from friend Tyrrel:

I can sell small trial packets for 5 cts. Seeds that ripen first have to be picked by hand. An ounce of seed will plant nearly four acres, 3 ft. apart each way. A. C. TYRREL.
Madison, Neb., Oct. 25, 1887.

THOSE BEES.

IN what condition are your bees for the coming winter? Have you done your duty by them to the best of your knowledge, or have you neglected them up to the present time? If the latter, you had better hustle.

THE BUNDLES OF HERBS HUNG UP IN THE GARRET.

SINCE what I have said on page 826 was put in print, it has occurred to me that it may have been our friend Terry instead of Prof. Cook who told me he was satisfied that the catnip, pennyroyal, and other like herbs that it used to be so common to preserve for their medicinal properties, had of themselves no effect whatever on diseases. I should be sorry to make a mistake in this matter, therefore I mention it here.

THE HONEY QUOTATIONS.

WE call the attention of our readers to the Honey Column of current issue. Choice comb honey, in one-pound sections, is ruling quite uniformly at 18 and 20c, as will be seen. It will also be observed that two-pound sections of honey, with scarcely an exception, bring about two cents less per pound than the one-pound sections. Will the friends please make a note of this in ordering for next season? Put your comb honey in packages that will bring the best returns. Two cents on a pound is an item worth taking into consideration.

THE NATIONAL CONVENTION.

THE following in regard to reduced rates, we extract from the A. B. J. of Oct. 26:

Reduced rates on all railroads are granted to attend the Fat-Stock Show in Chicago from Nov. 8 to 18, 1887. Tickets will be issued at one-and-one-fifth fare for the round trip. Bee-keepers who wish to see the Fat-Stock Show should come the last and best week, and can then attend the convention which occurs on the last three days, Wednesday to Friday, Nov. 16 to 18.

As we understand it, you purchase your ticket at any station, direct to Chicago. When you go home, by presenting some sort of paper furnished at the convention, at the Chicago ticket-office you get a return ticket for one-fifth fare. This will be quite

a saving. We are very glad to know that such an arrangement has been secured.

A LAWSUIT IN REGARD TO BEES BEING A NUISANCE.

WHILE at the convention at Albany, last January, I had some conversation with Stephen W. Rich, in regard to a lawsuit. John M. Olmstead, of Hobart, Delaware Co., N. Y., asked for \$1200 damages for injuries inflicted by bees upon his personal property. I suggested to Mr. Rich that he had better try to make some friendly arrangement with his neighbor, but he said it was impossible. Well, Mr. Olmstead has gained the suit; but instead of \$1200 damages, he got only *six cents*. Mr. Rich has a heavy expense to pay in the way of costs. It seems to me the decision was rather a reproof to both parties; but the Bee-keepers' Union does not propose to let it rest where it is. Mr. Rich must move his forty colonies of bees. It may be hard to decide what is the proper thing to do, since it has got in the shape it is; but lawsuits are certainly a pretty expensive luxury.

THE NEW JAPANESE BUCKWHEAT.

OUR own field, although it has blossomed finely, and filled out beautifully with grain, has not given half the number of bushels we expected. One trouble, no doubt, was that forty or fifty hens and chickens helped themselves during the time it was ripening, and the heads that were too high for the chickens to reach were carefully gone over by a flock of English sparrows. But such has been the case with almost all the buckwheat we ever raised, and it gave a better yield per acre than the Japanese. It is no more than fair to state, however, that our crop was matured during the great drought of 1887; and as most of you know, buckwheat stands dry weather very poorly. To get a good crop, you must have rain. The best I ever raised was when we turned under a heavy growth of clover, and the ground was so wet while preparing it that a great deal of the time it threatened to mire the horses. In regard to its yield of honey, very few bees were noticed on it while in bloom; but it should be remembered this season has been peculiar in this respect; for very few bees were seen even on white clover. We have had at this date, Oct. 21, just one other report of the Japanese buckwheat, and that was not very favorable. Now, we shall be very glad indeed to get a brief report from every one who purchased seed of us during the past season. If it is not going to pay to raise this great big black buckwheat, we want to know it.

ADVERTISEMENTS IN THE READING-COLUMNS.

I KNOW it is quite customary to insert articles in the reading-columns of journals and newspapers, that seem to be disinterested news items, providing the publisher gets good pay for such reading-notices. It has always seemed to me, however, a sort of cheat, or swindle. Why not let the advertiser use the advertising pages, and let everybody understand that what he has to say is an advertisement of the goods he has for sale? I don't believe in any feints or make-believes, or sly tricks to get people to notice goods of any kind; and whenever I take up a paper, and find a lengthy article headed in such a way as to mislead the reader, while somewhere in the middle of the article, or toward the end, it advertises "Warner's Safe Cure," or any other similar commodity, I at once lose faith in the

paper I am reading, and in the proprietors of the medicine as well. Perhaps many of the friends have noticed recently an article recommending certain mines in Arizona; and when I looked at the title of the paper giving place to such a communication, it gave me a feeling of pain. But I am pleased just now to notice a communication in the *Michigan Farmer* for Sept. 12, that strikes at the root of the matter. Any editor who "makes merchandise," as the *Farmer* puts it, out of the confidence his readers have in his paper, will sooner or later repent it. It is the Bohemian-oats swindle in another guise, over and over again.

SPECIAL NOTICES.

PRICE OF TACKS REDUCED.

Present prices on tacks of all kinds are lower than I ever knew them to be before. We are accordingly able to offer them at about half the price we have been getting for them. We now sell 2 oz. of $\frac{1}{2}$ -in. tinned tacks for 5 cts.; 3 oz. of $\frac{3}{4}$ -in. and 4 oz. of $\frac{1}{2}$ -in., for the same price, instead of 1, $1\frac{1}{2}$, and 2 oz., as formerly. Carpet tacks almost as cheap in proportion. Full table of prices will appear in our Jan. 1st issue of price list, now being prepared.

DISCOUNT ON GOODS BOUGHT THIS FALL FOR NEXT SEASON'S USE.

Until Dec. 1, we will give a discount of 8 per cent on goods strictly for next season's use, except the following: Machinery of all kinds for manufacturing; all tin and glass honey-receptacles; tin plate, and all counter goods. On Simplicity, portico, and chaff hives, we can give only five per cent. The principal goods included under the eight per cent discount are foundation, frames, sections, zinc, extractors, and comb-foundation machines. Remember, friends, to get this discount you must send cash with your order, and you must specify what goods are for next season's use.

EXTRACTED HONEY.

We are now prepared to furnish extracted honey as follows: Samples mailed free on application. Our stock consists of 4 cases, 120 lbs. each, choice clover extracted honey, at 12 c. per lb. in cases of 2 cans; 12 $\frac{1}{2}$ c. per lb. in cases of 1 can; 14 c. per lb. in smaller lots; 7 cases, 120 lbs. each, "glit edge," basswood. This is as good basswood honey as I ever saw. It is so thick it will scarcely pour. Price, same as clover; 6 cases, 120 lbs. each, choice basswood, at one cent per lb. less than clover; 50 cases California honey at 1 c. per lb. less than clover. We can also furnish choice comb honey in 1-lb. sections, 12 lb. cases, at 18 c. per lb.

WOODEN SEPARATORS FOR CRATES AND T SUPERS.

According to the drift of reports the past season, there seems to be a demand for wooden separators. They are preferred to tin for use in crates and T supers where they are loose, because they are not so cold, and they are stiffer and cheaper. We made and sold wood separators a few years ago; but as they were principally used on wide frames they did not give satisfaction, so we discarded them. For wide frames, and all places where the separator is nailed to something, we still recommend the tin as far superior, and cheaper in the long run, than any thing else; but for crates and supers where the separators are loose, wood is preferred for the above reasons. To meet this demand for wood separators we have just made a trial lot of 100,000 from nice white basswood; and if I do say it, they are the nicest I ever saw. If you don't believe it, send for a sample, mailed free on application. They measure in thickness 26 to the inch. This is as thin as we can make them without breaking the grain of the wood. Although so thin, they are quite stiff. They are cut from green timber, piled right up as though they were in a solid block, weighted, and put in the dry-kiln to season. By this process we expect them to dry without curling up. We offer them at the following prices: 100, 30c; 500, \$1.25; 1000, \$2.00; 10,000, \$15.00.

FINE-BRED JAPANESE BANTAMS.



My bantams took 1st in every entry made at Cincinnati, Ohio, Jan. 20, 1886. They have never failed to take 1st wherever exhibited. Young chicks from prize-winners for sale. Satisfaction guaranteed. Eggs in season. Show birds a matter of correspondence.

J. H. TATMAN, Connersville, Ind.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c. PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 11fdb

APIARY FOR SALE.

A well-appointed apiary with extensive natural pasturage. A reputation already established. A fine opening for a business in Florida. Address 21d J. L. CLARK, Apalachicola, Florida.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14fdb A. H. DUFF, Creighton, O.

WANTED.—To exchange bee-keepers' supplies for alsike-clover seed, buckwheat, any kind, or a lawn-mower, new. 18fdb BRIGHT BROS., Mazeppa, Minn.

WANTED.—To exchange 2500 Cuthbert Raspberry, and 10,000 White blackberry plants, for bees one-pound sections, or foundation. For terms, address P. D. MILLER, Grapeville, Westm'd Co., Pa. 20-21d

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20fdb

WANTED.—A Barnes Imp. Combined Scroll and Circular Saw for a Buckeye Imp. portable cider-mill, in good order, or for an aquarium. 20-21 J. H. ANDRUS, Almont, Mich.

WANTED.—Situation for 1888, by an expert bee-keeper. Address FRANK CURT, 20fdb Box 62, East St. Louis, Ill.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tfd ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange Imperial Pekin ducks or P. Rock chickens for alsike or sweet clover. Spring and Meadow Poultry Yards, Mulberry, Pa.

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CONVENTION NOTICES.

The annual meeting of the Southeastern Michigan Bee-Keepers' Association will be held at Adrian, Mich., on Dec. 15th, 1887. All are cordially invited to attend. A. M. GANDER, Sec.

The Susquehanna County Bee-Keepers' Association will meet at New Milford, on Jan. 7, 1888. Subjects for discussion: The best way to prevent swarming; also, is it advisable to Italianize! All bee-keepers are cordially invited.

H. M. SEELEY, Sec., Hartford, Pa.

BE SURE

To send a postal card for our illustrated catalogue of **APIARIAN SUPPLIES** Before purchasing elsewhere it contains illustrations and descriptions of every thing new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,

2 tfd Hartford, Washington Co., Wis.

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And STEREOPTICONS, all prices. Views illustrating every subject for PUBLIC EXHIBITIONS, etc. A profitable business for a man with small capital. Also Lanterns for Home Amusement. 152 page Catalogue free. McALLISTER, Optician, 49 Nassau St., N. Y.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btfdb

HOW TO WINTER BEES.

Eleven essays by eleven prominent bee-keepers, sent by mail for 10 cents. Address HENRY ALLEY, Wenham, Mass. 6tfdb

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APPLICATIONS PROSECUTED. ALL BUSINESS RELATING
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REDUCTION.

Until December 1st I will allow 5 per cent discount on hives, and 8 per cent on all other goods for next season's use. If parties who are wanting a quantity of goods, or dealers wishing to stock up for the season of 1888, will send on a list of about what they want I shall be pleased to name lowest prices. Sections planned on both sides, unless otherwise ordered. Remember my goods are noted the world over for quality and workmanship. Try me and be convinced.

W. T. FALCONER, Jamestown, N. Y.

Manufacturer and Dealer in Full Line API-
ARIAN SUPPLIES. 22d

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3btfdb

Wants or Exchange Department.

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WANTED.—Situation for 1888, by an expert bee-keeper. Address FRANK CURLE, 20tfdb Box 62, East St. Louis, Ill.

WANTED.—To exchange Ferrets or Jacobin pig-geons, for one or two Rouen drakes, beeswax, fdn., or supplies in the flat, or any thing useful. Write me. F. BOOMHOWER, Gallupville, N. Y. 22d

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Have four hybrid queens for sale at 25 cts. each. LUTHER GRAY, Orlando, Fla.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey*.—There is not much doing in honey here. California, comb, white, 2-lb. sections, sold here this week at 16¢@17c. More offered at that. White clover, 1-lb. sections, choice, 18c; fair, 15¢@17. Low-grade comb, 10¢@14. Extracted, white clover, cans, 7¢@9c; bbls., 6¢@7. Southern, 4¢@5¢ in bbls. *Beeswax*, selected, 21¢@23c. As it runs, 20¢@20½; greasy wax, one-half price. The demand for good to choice is fair. W. B. WESTCOTT & Co.,
Nov. 10. 108 & 110 Market St., St. Louis, Mo.

CINCINNATI.—*Honey*.—Demand for honey of all kinds is fair, and keeps about pace with arrivals. Extracted honey brings 3½¢@4c on arrival, and choice comb honey 18¢@20c in the jobbing way. *Beeswax* is in good demand, and brings 20¢@22c for good to choice yellow. CHAS. F. MUTH & SON,
Nov. 10. Cincinnati, O.

ALBANY.—*Honey*.—Market is steady, although receipts increased somewhat. We quote, clover, white, 14¢@18c; buckwheat mixed, 11¢@13; extracted, white, 7¢@9; dark, 6¢@7. Consignments solicited. H. R. WRIGHT,
Nov. 9. 328 Broadway, Albany, N. Y.

CHICAGO.—*Honey*.—The demand is fair, and prices are steady at 18¢@20c for best grades of white comb honey. Some fancy lots are being held at 22c, but no sales. Extracted ranges from 7¢@10c, according to style of package, color, and quality. *Beeswax*, 22¢@25. R. A. BURNETT,
Nov. 9. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey*.—Our market remains firm, and we are selling all good lots of honey as fast as they come in, at full prices. While comb honey has not changed any from last quotations, which, however, are firmly maintained, we can report a firmer market on extracted, and quote white at 9½¢@10 c; dark, 6¢@7c. F. G. STROHMAYER & Co.,
Nov. 10. 122 Water St., New York.

ST. LOUIS.—*Honey*.—We quote choice comb 16¢@18c; latter is for choice white clover in good condition, and in 1-lb. sections. Strained, in bbls., 4½¢@5 cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted, in bbls., 5½¢@6c; in cans, 7¢@8c. *Beeswax*, 20½¢ for prime. Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

Nov. 11. D. G. TUTT & Co.,
206 N. Commercial St., St. Louis, Mo.

CLEVELAND.—*Honey*.—Honey is in fair demand at 19¢@20c per lb. for 1-lb. sections of white clover and basswood; 2-lb. sections, about 2c per lb. less. *Beeswax*, 22¢@25c. A. C. KENDEL,
Per Carroll.

Nov. 9. 115 Ontario St., Cleveland, O.

BOSTON.—*Honey*.—Fancy one-pound comb, 18¢@20c; two-pound comb, 17¢@18c. Extracted, 7¢@8c. Market is fairly active. BLAKE & RIPLEY,
Nov. 10. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey*.—Offerings of comb honey are more free. Best white, in one-pound sections, 17¢@19c; extracted, 9¢@11. in small lots. *Beeswax*, 21¢@23c. M. H. HUNT,
Bell Branch, Mich., Oct. 24.

FOR SALE.—200 lbs. nice white-clover honey in 1-lb. sections, put up in 20-lb. crates, which I will deliver on board cars here at 20c per lb. F. H. MCFARLAND, St. Albans, Vt.

FOR SALE.—Free on board cars here, in new oak barrels, coated with paraffine, and holding about 520 lbs. each, 2000 lbs. of white-clover honey, at 9 cts. per lb.; 5000 lbs. white-clover honey, slightly mixed with basswood, at the same price; and 1500 lbs. of fall honey, at 8½ cts. per lb. All of this honey was raised in supers, on the tiering-up plan; is thoroughly ripened, very thick, and of the finest quality in every respect. Samples 6 cts. RUFUS PORTER, Lewistown, Ill.

THE CHAPMAN HONEY-PLANT.

Price of seed: 4'oz., \$1.00; 10 oz., \$2.00; 1 pound, \$3.00. Larger quantities by express, at reduced rates. Sow very early in the spring, or late in the fall. It vegetates in a low temperature. I have twelve acres that will bloom next spring. I shall sow two acres this fall. It is a success.

22-2d

H. CHAPMAN, Versailles, N. Y.

I could sell Maple Sugar; to my honey customers, I consign me some. ARTHUR TODD,
22d 2122 N. Front St., Philadelphia, Pa.

2-Lb. HONEY-JARS.

We have a new supply of two-pound square flint honey-jars, and can supply our friends on short notice. CHAS. F. MUTH & SON,
Cincinnati, O.

WANTED.—5000 lbs. dark extracted candied honey, in exchange for raspberry, strawberry, and Chapman honey-plants. DR. A. B. MASON, Auburndale, O.
22tfdb

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfdb

I WANT Comb and Extracted Honey, and Beeswax, to Sell for you on Commission. My Sales are all for Cash, therefore I can remit promptly, and I do it. ARTHUR TODD,
20d 2122 N. Front St., Philadelphia, Pa.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

SPECIAL NOTICES.

EXTRACTED HONEY.

OUR stock of extracted California honey is exhausted, and we can furnish no more till further notice. We still have a nice lot of clover and basswood honey left, at the prices mentioned in our last. We should be pleased to receive samples of nice California white-sage honey from some of our California friends, with offers on a carload delivered here.

BARNES COMBINED FOOT-POWER SAWING-MACHINE.

We have, at Quitman, Mo., a Barnes combined foot-power sawing-machine, such as we advertise in our catalogue at \$40.00. It has been used 3 years, and is in perfect running order. We will sell it for \$25.00. We have also, at the same place, a second-hand 10-inch fdn. mill almost new, including a dipping-tank which we will sell for \$15.00, or the two for \$38.00.

DISCOUNT ON GOODS BOUGHT THIS FALL FOR NEXT SEASON'S USE.

Until Dec. 1, we will give a discount of 8 per cent on goods strictly for next season's use, except the following: Machinery of all kinds for manufacturing; all tin and glass honey-receptacles; tin plate, and all counter goods. On Simplicity, portico, and chaff hives, we can give only five per cent. The principal goods included under the eight per cent discount are foundation, frames, sections, zinc, extractors, and comb-foundation machines. Specify what goods are for next season's use. After Dec. 1 we will allow a discount of 5 per cent.



Vol. XV.

NOV. 15, 1887.

No. 22.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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INTRODUCING VIRGIN QUEENS.

HOW DOOLITTLE DOES IT.

SOME time ago I wrote an article for GLEANINGS, on the desirability of introducing virgin queens, four to six days old, to nuclei from which a laying queen had just been taken. The want, as I then felt, of some sure plan of safe introduction of old virgin queens was, that the queen-breeder might the sooner get a laying queen in a nucleus from which one had been shipped, so that he could live at rearing queens at the low prices to which they had fallen. That such was an object worth accomplishing, I think no one will deny; but, worthy as that might be, I think there is a need now of such a plan of safe introduction for four and five days old virgin queens which amounts almost to a necessity.

The cause of this need of which I speak is the idea which seems to be gaining ground rapidly in the minds of our best bee-keepers, that a great gain can be secured by sending virgin queens from one apiary to another apiary at quite a distance, in order to get a direct cross from bees of the best strains, through the fertilization of the queen. A virgin queen is not fit to start on a journey till she is 24 hours old; and as from two to four days must be consumed in her transit by mail, it will be seen that the fact that *very young* virgin queens may be quite successfully introduced has no bearing on the subject whatever. That a five-day-old virgin queen is a hard thing to introduce, is proven from the fact that I sent nine such queens to one of our most successful queen-breeders, and five to another, and the first lost six out of the nine in introducing, while the latter lost three out of five. I have tried all the plans that have ever come under my notice for introducing these five-day-old queens, and

many that have originated with myself, and will say that all that are any thing like practical, fail so many times that they can not be called a success. That all may study into this matter in the near future, with the hope that out of our thousands of bee-keepers a successful plan may come, is the object of this article. As a little for a starting-point, I will give the two most practical plans which I have tried, which have come the nearest to success.

The first and most often successful is as follows: Make a round wire-cloth cage, about an inch in diameter and $3\frac{1}{2}$ inches long. Into one end fit a permanent stopper; and for the other, saw off a piece of old soft-wood broom-handle, five inches long. Whittle one end down so it will go into the end of the cage $\frac{1}{4}$ inch, when a $\frac{3}{8}$ -inch hole is to be bored through, lengthwise. Next fill this hole with the original Good candy, made of granulated sugar and honey, and pack it in with a plunger quite tightly. Now cage the virgin queen in this cage; and as you go to remove the laying queen, take the cage along with you. After having removed the laying queen, and replaced the frames back in the hive, lay the cage lengthwise between the top-bars of the two frames having the most brood in them. Put the quilt over all, and close the hive. As it takes the bees about three days to burrow through or dig out the five inches of candy, the bees are pretty well acquainted with their loss and the state of affairs before they get to the queen. In a week's time I generally find this queen laying, when the introduction is successful, and this happens about four out of five times.

The next best plan is the Alley plan of waiting three days after the removal of a laying queen, when the virgin queen is dropped in honey and rolled over in the same, after which she is dipped out and poured down between the frames among the bees. With this

plan I do not get a laying queen any sooner than with the others, and fail about once out of four times. However, it is a little more simple than the first, but requires the opening of the hive one more time. What we want is a *safe plan of direct introduction*; but direct introduction, except the first queen when making the nucleus, has very nearly baffled me entirely.

G. M. DOOLITTLE.

Borodino, N. Y., Nov., 1887.

There is no question, friend D., but that it would be worth lots of money to us to know how to introduce virgin queens when old enough to be almost ready to commence laying; for in that case we could sell a queen and have another one laying in the same hive, in three or four days. In a week she should have the hive pretty well filled with brood. The queen-nurseries made of a lot of cages, to be hung in the hive, claim to accomplish this, but I believe they never do it with enough success to make it really practicable. From what experience I have had I should give your first plan the preference. We should be very glad to hear from our queen-breeders generally in this matter.

ARTIFICIAL HEAT IN THE WINTERING-CELLAR.

DR. C. C. MILLER DISCUSSES DOOLITTLE'S POSITION IN REGARD TO THE MATTER.

AFTER reading friend Doolittle's article on page 738 several times, and each time with increased interest, and also looking over my own article, page 613, I am more than ever convinced that, for me at least, there is yet something to learn about wintering. In the present case, self-interest makes me pocket my pride, and desire that Doolittle may come out ahead. I am sorry to say, that too often, when controversies arise, I am more anxious that I may come out ahead than that the truth shall come out ahead. After all, what does it matter whether I am right or wrong in the first place, so I may be sure to be right in the last place—in other words, that the truth may be established?

And now, not for the sake of controversy, but for the sake of lessons to be learned, I refer to some points in Bro. Doolittle's article. With the mercury 10° above, outside, and a brisk wind blowing, he could, in one hour, reduce the temperature inside from 45° down to the freezing-point, by throwing both ventilators wide open; but he was convinced this was an injury to the bees, for the commotion caused did not subside for two or three days afterward. Very likely. I think we may learn that such rapid lowering through so many degrees is undesirable. I never tried such violent measures. With the thermometer 10° above, I have never found it necessary to cool down the cellar; but when warm days and nights came I lowered the temperature, not 13°, but perhaps 4 or 5°, not in one hour, but in 10 or 15, and then the commotion subsided before the cooling process was over, and I think the bees were much benefited thereby.

You say, brother Doolittle, that you "resolved on no more artificial heat of any kind, and not to allow the temperature to go lower than 43°." I have never seen any evidence of harm from stove heat; still, I should much prefer to dispense with it; but so far I have not succeeded in keeping the temperature 43° above without it. Perhaps I ought to do

more banking up; and if you can keep at 43° or above, I want to try to approach it, although sometimes our winters go down to nearly 40° below zero. But I must confess, that my anxiety for ventilation has made me less anxious to have my cellars closed up tight. Your experience of last winter, with no effort for ventilation whatever, shakes my previous belief somewhat. Still, if the 50 colonies had plenty of ventilation, would 100 have done as well?

Mr. D. gives a table showing the spontaneous passage of air through walls of stone, etc., and then asks, "Does the doctor now think that doors wide open are necessary?" Now look here, brother Doolittle. If, during a warm spell, I found my bees uneasy, and my previous experience taught me that, if let alone, the uneasiness would increase, but if well aired all would be quiet by morning, and remain so for days, you couldn't stop me from throwing doors and windows wide open; no, I couldn't be stopped by a table of figures ten times as long as the one you have given.

After all, friend D., even if I could beat you at controversy in this affair, and I don't believe I have, you have done what is of more importance—beaten me in practice; for you can put your bees into your cellar and leave them for the winter untouched, while I have already laid in my stock of best Cross-Creek Lehigh nut coal, which will require my attention every morning and evening through the entire winter.

PRICES OF HONEY.

Bro. Root, on page 744 you quote comb honey at 12 to 20, and extracted 10 to 15, making the latter about three-fourths as much as the former. The Honey Column in the same number of GLEANINGS makes the average price of extracted less than half that of comb. Taking the quotations as given by the eleven different houses, comb ranges from 8 to 20 cts., the average of all being 16 cts., and extracted ranges from 3½ to 10, the average of all being a shade less than 7 cts. Have you not put extracted a little too high in proportion to comb?

SPACE BELOW FRAMES.

On page 767 you give three-eighths of an inch as the proper space between the bottom-bar of the frame and the bottom of the hive. I think most will say that, for winter, a much larger space is desirable. As the bees are much given, at least mine are, to building little piles of propolis on the bottom of the hive, a larger space than ¾ is, I think, desirable, even in summer. I have a space of ¾, and have never seen a case where any harm occurred from it. I think I should prefer a space as large as could be used without having the bees build comb under the bottom-bar. Would they do so with a space of an inch?

C. C. MILLER.

Marengo, Ill., Oct., 1887.

Friend M., we put extracted honey according to demand and supply; and a really first-class gilt-edged article does bring with us at least three-fourths as much as comb honey.—I think the shape of the bottom-bar has something to do with the question about bees building combs below it. With a very narrow bottom-bar they are more apt to do so than with bars such as we usually make. I have seen hives, frequently with a full inch between the bars and bottom-boards, and no combs were built below unless they were waved so as to have the bottom edges run off at one side.

PARTLY FILLED SECTIONS.

DISPENSING WITH THE SLATTED HONEY-BOARD,
AND RESULTS.

I HEARTILY agree with Mr. Green as to the value of unfinished sections for the coming season. We have always practiced placing them on colonies needing feed in the fall; and after being cleaned out we pack them nicely away for use the following spring. We find it much better to place only two or three of these partly filled sections in a case, instead of full cases of them, as formerly practiced by us, for we find our poorest honey comes from these partly filled sections, as they will not add to and fill out these equal to sections filled with newly made foundation. It is quite common to have them filled with dark honey from the brood-combs below.

Although a large majority of our prominent honey-producers vote in favor of the use of slatted honey-boards in the production of comb honey (in last issue of GLEANINGS) I can not agree with them. One of our yards of 28 colonies filled 1440 sections perfectly the past poor season; and I will venture to say that a nicer, cleaner lot of honey can not be found anywhere; and I am confident that I did not consume one-fourth the time in cleaning off bur-combs that others would in cleaning up slatted honey-boards. We use the T super, as made and used by A. E. Manum, and have our sections run cross-wise of brood-frames; and if the space is just right, there will be no stickers to speak of, we not having a quart measure full, from 1800 sections filled in our yard.

As to the use of slatted honey-boards preventing the queens from laying in the sections, I will say we have no trouble on that score, not having brood in one from over 5000 filled the past season. Our success may be partly due to our having the native bees, for I do notice that the Italians are much better at building where they ought not to.

Our bees are in the finest condition for winter, having had the best fall for honey we have ever seen here, in four years' residence. H. W. BASS.

Front Royal, Va., Nov. 3, 1887.

Friend B., you and friend Green and others are unconsciously bringing out another great point in favor of foundation. If I am not mistaken, friend Doolittle said, years ago, that starters made of good-sized pieces of white comb were ever so much better than a strip of foundation, or even foundation enough to fill a section; and I do not know that anybody ever contradicted him, for we all accepted his statement as indisputable. The only point we made our defense on was, that good-sized pieces of clean white comb were much harder to get, and more trouble to put in than foundation. It now transpires, however, and I confess a good deal to my surprise, that foundation is not only cheaper, and easier to put in, but that it is really ever so much better to start the bees quickly to get uniform, nicely filled sections, and to make the whole appearance of the case of honey more taking. Only yesterday we received 22 cases of comb honey, containing 16 sections each. The honey is exquisite in quality, but the sections are very poorly made, four-piece, and much too wide to be used without separators; and the consequence is, that three-

fourths, if not more, of the honey was broken out in shipping. I do not know what kind of starters our friend used, who shipped us the honey; but many of the cakes of honey seem to have been attached mainly to the top-bar, some little attachments to the side-bar, and almost none to the bottom. Full sheets of foundation for starters would have saved us the price of them ten times over. As it is, we have a dauby, nasty, sticky mess. It will take three good women a whole day to make it fit even to offer for sale. I can not see why anybody should use four-piece sections when one-piece sections are so much stronger and neater. We have just been handling honey put up by neighbors Shane and Chase, of our own vicinity, and in handling their whole crops we did not get a single comb broken out of a single section. The contrast between these two crops of honey and the one just sent in to us is wonderful. When neighbor Shane drove up with his wagon-load it didn't take me five minutes to decide I would give 16 cts. a pound for it; but had this other shipment been offered to me as it came in on the cars, I should have refused it at 8 cts. a pound; and all this difference comes in the way of managing, and in the trifling additional expense in the way of sections, and thin foundation enough to fill them.

PRESENT PRICES OF HONEY.

ALSO SOMETHING ABOUT THE BEVELED EDGES.

FRIEND ROOT:—I heartily agree with the valuable points made by Dr. Miller regarding changes in the running of our conventions, etc. I think the election of officers should be the very last thing on the programme. Perhaps I am wrong, but it looks that way to me now.

GIVEN PRESS.

I notice what friend Good says regarding the Given press, on page 823. Isn't it strange how we all differ in our theories and experiences? I can readily make the very choicest of surplus foundation with the Given press. As regards making brood foundation within wired frames, I have on hand about 3000 frames so made, and they are certainly "a thing of beauty and a joy for ever." More perfect combs I never saw, and they are made very rapidly. As it is a fact that putting foundation in wired frames by hand is a practical and quite speedy performance, there is no need of buying a Given press for the purpose, especially where one has no great number to prepare.

BEVELED EDGES.

It seems strange that so many people will misunderstand this question of beveled edges. I have no objections to beveled edges for outer covers, nor to any edges that do not come in contact with the bees when being adjusted. Beveled edges do not admit of that lateral motion which is so very advantageous in adjusting edges of supers and cases, with bees rolling out around said edges. I could not be induced to use bevels in this place, even if it cost nothing or less than nothing to create them. They could do me no good. We use the weights on our hives, not to prevent the wind from blowing them over or apart, but to keep the broad shade-board on the hive. Now, were I using your

hives, no matter whether they were filled walls and double covers, or chaff or Simplicity hives, I should always use these shade-boards; and I wouldn't have any other substitute for shade, bothering me in my apiary. We never have any wind that will blow sections of bee-hives apart after the bees have glued them, even without the use of the weights, which, of course, would tend to hold them together while in use for the purpose of holding on the shade-board. Several have suggested hooks and keys and other traps for holding on these covers; but there is nothing so good, so quickly manipulated, and so cheap, as the stones. It is simply a pleasure to handle them; and if I had a student or bee-keeper working for me who objected to handling these stones, I should know at once that he lacked the qualifications which would fit him for a successful honey-producer.

PRICE OF HONEY.

I notice what you say in the last issue about the price of honey, and that you think 8 or 9 cents should be about the stopping-point for extracted honey for 1887. I carried over 2000 lbs. of clover and basswood from 1885, '6, and have sold that and this year's crop for 10 cents a pound, and am quite sure that my amount on hand will not last me till January 1st, at the rate orders are now coming in. Bright amber honey, which is a mixture of basswood and fall flowers, we sell for 8 cents, and it is going rapidly. This honey is nearly all sold to bee-keepers who are wise enough to keep their local demand supplied; but, mind you, it is rich, ripe honey; and when we have any other it goes off by the barrel to wholesale dealers, who, no doubt, sell it off for mechanical purposes. Now, friend Root, let me ask you to consider what was the price of honey last year, and how does that price compare with your proposed 8 and 9 cents, even for ordinary extracted honey, as it is found on the market? Will you please figure the per cent difference in price, and see how it accords with the fact that there is less than one-fourth of a crop the country over? You remember how they used to churn your humble servant for declaring that honey could never become a staple nor any thing like it. Now, suppose that sugar, wheat, potatoes, or even oysters, were only one-fourth of a crop this year; what would be the result of that? Such is the case with potatoes throughout Michigan and adjoining States, and they are bringing a dollar instead of 25 cents a bushel. I think two stores in our place have some comb honey, which they offer for 20 cents a pound, and they hardly sell any at all. I presume people are eating as many potatoes as ever. Honey is not, and never will be, any thing like a staple commodity; and the moment the price is run up, consumers at large give it the go-by. We are getting 20 cents for our comb, all from large cities, where it is purchased by a class who never stop for price, because they never earn the money they possess.

JAMES HEDDON.

Dowagiac, Mich., Nov. 3, 1887.

Friend H., it has occurred to me that one reason that has been given for the election of officers when the convention is only half through, is, that there are more present. The first day the attendance is often small, and the same toward the close; and, of course, when the election of officers takes place we want everybody to have a fair chance. This is especially the case in de-

termining the locality of the next convention.—If you think, friend Heddon, it is a pleasure to handle stones, I am afraid we shall have to agree to disagree on this matter. If I have got to use them, I think I would have them made of cast iron, with a good convenient handle. Just imagine a big flat-iron standing on top of every bee-hive, to make the shade-board behave itself during a wind!—In regard to the prices of honey, I think I shall have to let friend Muth talk to you. He scolded me because I was anxious to see the price run up, and you are taking me to task because we don't offer more. I suppose you know, however, that demand and supply must regulate what we pay; and I would by no means dare buy all of the nice honey that has been offered us at 9 and 10 cents. I am very glad, however, to know that you are getting 10 cents; but if you mean that this includes a package, holding, say, 50 or 60 lbs., you are selling even cheaper than we do. Potatoes bring with us from 75 to 80 cents, and it does me good to see those who have secured a good crop, get a good nice price for them. When I want to buy, I really enjoy paying 80 or 90 cents for nice ones.

THE GIVEN PRESS AND THE BINGHAM SMOKER.

FRIEND TAYLOR STANDS UP IN THEIR DEFENSE.

MR. ROOT:—I notice you are still asking for the experience of those who have used the Given press, with regard to the advantages of that machine for making foundation; and though I seldom voluntarily undertake to write, I feel that the two last numbers of your journal contain some statements with regard to the press, and the character of its production, that should not go unchallenged. I refer to the remarks of yourself, Mr. Dadant, and Mr. Good; and I must say, after using the press for five years, and making with it all the foundation required by my own apiaries, now consisting of 500 colonies, besides considerable quantities for sale, that you all, so far as the disadvantages you charge against the press are concerned, are entirely wrong.

I am the more surprised at Mr. Good's statements, because he has had some experience with the machine. With me, putting foundation upon wires by hand is not at all to be compared with the press method, either in speed, neatness, or the staying qualities of the foundation. For sections, I very much prefer foundation made on the Given press. I tested it in a small way by the side of that made by one of the most prominent manufacturers in the country. Fourteen sections were filled with each kind of foundation, the two kinds being of equal weight; and the sections, being carefully marked, were put in a Heddon case (no separators), alternately throughout, and placed on a hive containing bees. At the end of the season every section was filled and capped. There was a marked difference in the appearance of the two kinds, in point of plumpness; and on being removed from the case, and weighed, those filled with Given foundation were found to weigh 13 lbs. and 5 oz., and the others 12½ lbs.—a difference of about 8 per cent in favor of the Given.

There is no difficulty at all in making the foundation "nice, thin, and even." If the sheets of wax as dipped are not of an even thickness, it is only necessary to change the method of dipping, to make them sufficiently so. Why, friend Root, don't you see that your little account of the young woman in Norway entirely upsets most of your objections? The success of *one* person with a machine is a much weightier argument in favor of the machine than are the failures of a dozen persons against it. Many very valuable contrivances are long unused, because it takes a long time to learn how to use them. But what man once does, man can do again. That either yourself or Mr. Dadant could make a notable success of the press, the Norway story proves.

Now, a word on the editorial in the Nov. 1st issue of GLEANINGS, regarding the Bingham and Clark smokers. In what strangely different ways people will look at things! I am now using four Bingham's, and have heretofore used about half a dozen Clark smokers, and think I am quite within bounds when I say that, in this locality, the time required during a single season to punch the soot out of the tubes of the Clark smoker, and to unload the bellows of the same material, would, if usefully employed, more than purchase one of Bingham's best, that would need no such expenditure of time. I have often had the fire-box of a Clark come off the bellows, but never a Bingham. Only carelessness, I think, would ever permit the contents of a Bingham smoker to fall into a hive, and it is decidedly less liable to throw cinders than Clark's. For me, I find the Bingham more easily lighted, the fire more easily kept in order, and in no respect do I find the Bingham inferior to the other; and, moreover, the Clark is a source of great danger in the hands of a person who is liable to set it on a hive.

Lapeer, Mich., Nov. 4, 1887.

R. L. TAYLOR.

I am very glad indeed, friend T., to hear what you have to say in regard to the Given press; and it certainly does seem as you say, that friend Dadant, ourselves, and others, ought to succeed with it; but we have had two different presses sent us, and I have wasted time and money in trying to make them come anywhere near our foundation-mills in regard to rapidity and quality of work; but we were obliged to give it up. In the first place, after spending days in papering up the dies, according to the instructions of friend Given, we could not get foundation with an even base. The base would be thick in some places and thin in others. Neither could we get the sheets to come off without more or less bother and tearing; and after we got them off they were not fit to send out. Perhaps we didn't have a good press; and, by the way, friend Given said he feared it was a difficult matter to make the press work as well with the L. frames as it does with the smaller frames, such as friend Good uses. My impression was, that you used the L. frames. But perhaps I am mistaken. In your experiments, you say you got more honey in the sections where the Given foundation was used. Now, that may not be any particular advantage, as I understand it. If the bees filled those sections first, or with more rapidity, having the Given foundation instead of the other, then we should have to

pronounce it better. I know it is true, that there are many valuable contrivances which often lie idle for years, unused, because no one ever gets acquainted with them; and I have sometimes sadly meditated that this must necessarily go on. I should say you hadn't ever really got the hang of the Clark smoker. Please remember that many of our large and successful apiarists use the Clark, after having tried both kinds.

In regard to the smokers, Ernest replies as follows:

Yes, it is a little remarkable that we look at things so differently sometimes. I believe it is a good deal in getting used to things, in the first place. About the sooty accumulations in the Clark, I am ready to concede the point to you, that the time required during a single season to clean the soot from the tubes of the Clark would several times pay for a Bingham, if there were nothing in the latter to offset it. While it does take time to clean the tube in the Clark (on an average, two minutes a day in the working season, with us), it takes us as much time to refill the Bingham, during the day. I never saw the Bingham yet when it required to be refilled but that I found it quite uncomfortable to handle the smoker-cone in pulling off and putting on again. If you have an old cloth handy, or something of the sort, with which to handle the hot smoker-top, we might get along very well; but it has been our experience that we can replenish the Clark in about one-fourth of the time that it takes to replenish the Bingham. In general, it takes about as much manipulation with one smoker as with the other; and while some might save valuable time by the use of the Bingham, we so far have not been able to discover the gain or loss of time in the use of either one.—It may be carelessness in letting the smoker-top drop off, so as to precipitate coals down among the bees; at any rate, we have as careful a man to handle the Bingham as we ever had in the apiary; in fact, he was selected for an apiarist because he was always very careful in every thing that he did. With some, the Bingham may be more easily lighted than the Clark. With us, the latter is more easily lighted, and, in general, is more quickly manipulated, if we except cleaning out the soot in the morning, preparatory to commencing work in the apiary. You say the Clark is a source of great danger in the hands of a person who is liable to set it on a hive. I presume you refer to the sparks which occasionally drop out of the breech end when the sliding door is slid so as to leave too wide an opening. While I am ready to concede this, yet I think it is "only carelessness" that would endanger the hive or its contents. When we set the Clark smoker on the hive, we invariably lay it on its bellows, the valve side down, and we never make a practice of setting it down upright. Having considered some of the objections which you make, I want to say just one thing more: I do like the hot-blast principle; and I am sure that it gives a little better smoke, though it is not without some objections.

A NORTHERN BEE-MAN'S VISIT SOUTH.

THE QUESTION OF OVERSTOCKING; 800 COLONIES IN ONE APIARY.

I HAVE just returned from a visit south to friend Viallon's, at Bayou Goula, La.; friend Stahl's, at Kenner, La., and friend D. McKenzie, of Camp Parapet, La. I found friend V. the same pleasant, agreeable, well-informed gentleman whose hospitality I had enjoyed several years previous. Owing to lack of sufficient reliable help, his apiary was not so large nor in so good condition as I had seen it on a former visit; but as he has now engaged an excellent young man to assist him the coming season, all will soon be booming again. His yards and grounds are a delight to all lovers of the beautiful. What do you think, friend Root, of persimmons that measured over 10 inches in circumference? He has quite a number of persimmon-trees of the Japanese variety, that bore abundantly this year, and he presented me a twig with three of the fruit on it measuring as above.

Friend Stahl, of Kenner, should be a good authority on overstocking, as he has over 800 full colonies in his home yard; and says he sees no more difference in the yield than when he had only one hundred colonies. If there is any one in the South who fully understands the practical manipulation and management of bees for profit, it is friend Stahl.

Friend McKenzie has some 250 to 300 colonies in his home yard; and though only about 6 miles from friend Stahl's, he complains of overstocking; but as friend Winder has some 300 colonies within 3 miles of him, and he is further from the swamp than friend Stahl, that may account for it. None have made as much honey as usual, though friend Stahl reports some 16 bbls., and I heard that friend Winder had taken about 20 bbls.; but I didn't have an opportunity to see friend W., and verify the above report. I saw or heard of no cases of foul brood, and my experience and observation lead me to believe that, where there is a continued and abundant yield of honey in the proper season, there foul brood can not flourish, and soon dies out, while the reverse is true; viz., great scarcity of honey during some portion of the season tends to develop it, and to add to its malignity.

The cane crop is a magnificent one this year in Louisiana, and all intelligent planters with whom I conversed feel rejoiced at the prospect of their Northern brethren soon joining them in raising enough sorghum sugar to supply all our own needs, and have some to export too, and save the one hundred million dollars we now send abroad for sugar.

E. T. FLANAGAN.

Belleville, Ill., Nov. 2, 1887.

I do not know that persimmons ten inches in circumference are any thing wonderful, friend F., for I never saw a persimmon, and so I don't know what the orthodox size is. Some friend in the South once sent me a little box of them, but they were all rotten before they got here.—Eight hundred colonies in one yard is astounding; and before I can believe it possible that so many can do even tolerably well in such numbers, I should like to see a report of the honey received per colony. I should not expect it to be ten pounds, even during the most favorable season. Still, I am open to conviction; and I should feel the same about 250 or 300

colonies in one yard.—Very likely you are right in the point you make, that poor seasons develop foul brood.

ANOTHER GOOD MAN GONE FROM THE RANKS OF BEE-KEEPERS.

DEATH OF A. C. KENDEL, OF THE CLEVELAND SEEDSTORE.

WE are pained to hear that our old friend A. C. Kendel died Oct. 31. Friend K. has been widely known as a Christian business man in every sense of the word. In all his large business in commission on fruits and honey, I do not remember that I ever heard a complaint of injustice, inattention, or even carelessness. Every one who had deal with him had reason to say, "Well, there is an honest, straightforward, upright man, any way." I remember years ago, when we first secured our great crop of clover and basswood honey, that friend Kendel sold tons of it for us. Well, on one lot that we sent to him, put up in bottles, his men, in handling the boxes, left one box upside down; and as the corks were not very accurately fitted, a great many of the jars were found empty.*

I believe the boxes were marked to be kept a certain side up; but, as is often the case, the instructions were not noticed or observed. Friend Kendel decided, without being urged, that he ought to pay for every drop lost; and in all my deal with him I have found him just that way. Some of you may say that this was simple justice; but I tell you, my friends, when you find a commission-man who will do like that, you have found a jewel. I proposed to stand part of the loss, but he pleasantly insisted on making it all good himself.

He has written for the pages of our journal at different times; but of late his large business has, I fear, debarred us from the pleasure of hearing from him. Only a few days ago I had a pleasant talk with him, and I did not notice but that he was as well as usual. Is it possible that too much business and too many worldly cares have taken this good man from us before his time? Mr. K. has been doing a large business in seeds as well as a commission business; and I believe every one has learned to feel that, whatever Mr. K. has said in regard to seeds is to be relied on. We are informed that the business of the Cleveland Seedstore will go on just as in times past; and may God give the new hands in the business grace to keep its reputation where it has been for so many years.

* I am really afraid, friends, that had the position occupied by myself and friend Kendel been reversed, I should have written something like this: "Friend K., why did you not cork your bottles so they would stand being left upside down? You ought to know that, in the rush of business, it is next to impossible to keep packages one exact side up, even if they are so marked." As I recall the transaction to mind, I feel ashamed of myself, even now. Friend K. lost some little money in the transaction, but he put in a good big corner-stone in the way of a good Christian character; and, my friends, did he not also put in a good solid stone for Christ the Savior? "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me."

THE ANATOMY OF THE HONEY-BEE.

ANTERIOR LEGS OF BEES.

NEXT to the posterior legs, the anterior are most interesting objects of study. The first three joints of these legs (see Fig. 1) are not essentially different from the same in the posterior legs. The compound hairs are abundant, and, as seen in the microscope, are very beautiful. The tibia is not modified, as seen in the posterior legs, but has a strangely modified tibial spur, Fig. 2. This resembles a short-handled knife. The part answering to the blade is strengthened at the base by a sort of knob; it is wide and blunt at the end, with a projecting point at the back. The inner part of this blade consists of a soft membrane, just such as we should like to use as a duster. This modified tibial spur is found in all hymenoptera, though it is greatly varied in different families and genera, and may be wisely used in classification. Thus in *Nomada* the membranous blade is quite distinct from the back portion of the spur, which is continued in a long spinous

Just opposite of this tibial spur in the worker-bee, on what might be called the elbow of the tibia, is a most delicate brush, Fig. 1, just such as the bee could use very conveniently and effectually as an eye-brush.

The basal tarsus is also broadened in the anterior leg, and contains a hemi-cylinder at its base which is smooth on its inner surface, but contains on its outer margin some seventy or eighty teeth, or spine-like hairs, much the same as those seen on the blade of the tibial spur of the sphex wasps. This comb-like cavity is exactly covered by the blade of the spur when the joints are placed the one upon the other. Thus we have in this exquisite apparatus the antenna-brush, or cleaner. It is found in the drone and queen, as well as in the workers. The cavity is found in all bees and



Fig. 2.

THE FRONT LEG OF A BEE, WITH ENLARGED VIEW ON THE LEFT.

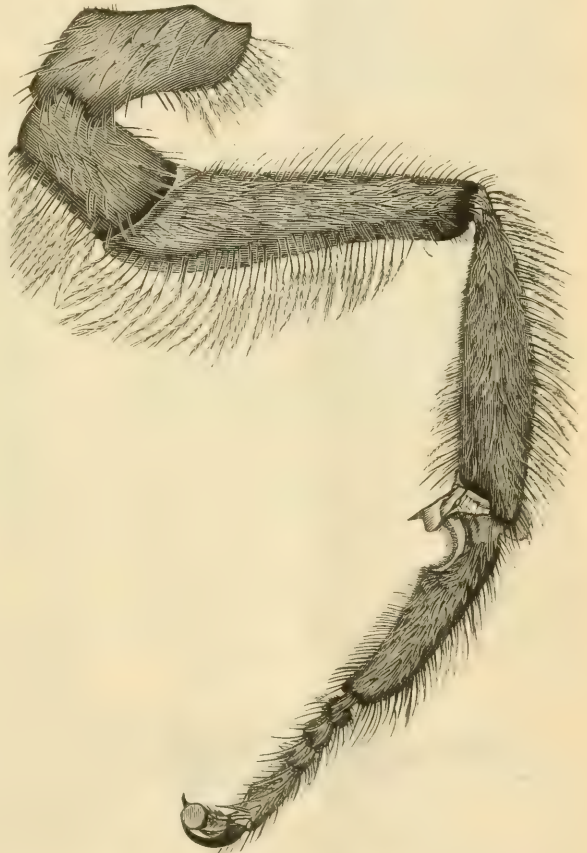


Fig. 1.

point. In two families of wasps, *Sphegidae* and *Pompilidae*, the edge of the blade is fringed with a beautiful delicate brush, and in *Sphex* the end is deeply notched, so there are two points, between which are several finger-like projections. In the ants there is a double row of this exquisite fringe, making a brush that is most beautiful, and the blade extends in a graceful curve to a beautifully fringed point. The membranous blade is seen, even in saw-flies, which are among the lowest of this most interesting order of insects.

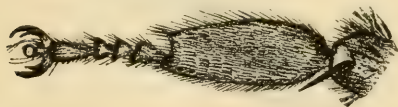
wasps, and in all hymenoptera, if we except the lower families. In the gall-flies, cynips, saw-flies, and some others, the cavity is not even suggested, though, as before stated, the membranous blade in the saw-flies shows that the arrangement is not wholly obsolete in these insects.

The function of this curious apparatus as an antenna-cleaner is easily determined. We have only to take a bee or wasp by the wings, and dust its antennæ with chalk or flour, and then put it on the window of our room, when it will be observed to

rub its anterior legs over its head; and by close attention, especially with a small lens, we can easily see one antenna and then the other passed through the antenna-cleaners, and soon we shall notice that the dust has all been removed.

After the bee has passed its antenna through the cleaner, it takes the leg used and draws it through between the basal tarsi of the middle legs. These tarsi have pollen-combs of stiff hairs on the inside, and thus the antenna-cleaners are in turn cleaned. I have found that many wasps vary this last operation. They pass the forward, or anterior legs, between the mandibles, or jaws, just after they are used to clean the antennæ, and so; the antenna-cleaners are cleaned by aid of the jaws rather than by use of the middle legs. By closely watching a bee as it backs out of tubular flowers, we have a fine opportunity to see it use these antenna-cleaners in freeing its antennæ of the pollen.

I have become very much interested in studying these peculiar organs. I believe in many cases we could, simply by studying these organs, place the bees, wasps, etc., in their respective families, and, in many cases, in their genera. Nor should we wonder at this. The antennæ have been shown by entomologists to act as organs of smell, and we all know that they are most delicate tactile organs. How necessary, then, that they should be kept free from any thing that would dull their sensibility! We should expect, then, that, as these organs have been developed, they would be modified to correspond with the habits of the insect. Some of the bees and their allies work only in the pollen dust; others dig in the earth, or gather mud, while others bore in wood, etc. Thus each would require a different style of brush to free the antennæ of taint. Those that use the jaws to clean the cleaners would doubtless have a different style of cleaner than would those that use their legs for this purpose. Again, the higher the instincts, or, better, the higher the intelligence of the insects, the better or higher would be the development of such important organs as the antennæ. Likewise, any other organ like this antenna-cleaner which is related to the antenna, would be more or less highly developed, to correspond with the complexity of the antennæ themselves. Hence we do not wonder that these beautiful organs are of great use in our systematic study of this most interesting order of insects.



THE MIDDLE LEGS.

The middle legs are peculiar only in the possession of the sharp tibial spur and the beautiful pollen-combs on the inside of the basal tarsus. These latter are formed of stiff hairs, like those on the posterior legs, except that the arrangement in rows is absent.

It has been suggested that this spur has been used to pry off the pollen masses from the worker's legs as they push this pollen into the cells of the comb. The fact that queen, drone, and all others of the hymenoptera, have this spur even better developed than do the worker-bees, as also the fact that the stiff hairs on all the four posterior legs are better adapted to perform this office, makes this

view doubtful. The combs not only aid in removing and transferring the pollen to the pollen-baskets, but, as we have seen, they serve to clean the antenna-cleaners, and also to push the pollen masses from the posterior legs into the comb-cells.

Agricultural College, Mich.

A. J. Cook.

Friend C., may I offer a suggestion in relation to the above? A bee is a rather delicate piece of machinery—at least it begins to look so as you describe and illustrate it to us. Well, dust is one of the foes to any piece of delicate apparatus. When I worked at repairing watches I used to have to scold the apprentices over and over again for leaving watches on the bench uncovered by their appropriate glasses; and much talent and skill have been expended in making dust-proof cases; for when a watch gets full of dust it is a watch no longer, and the dust spoils the delicate machinery if not removed. Well, as it would not be practicable to keep a bee shut up in a glass case all the while, the Creator has, in his infinite wisdom, provided the insect with beautiful complicated machinery for freeing itself from dust. Did you ever notice that, when a bee gets on the floor—at least an uncarpeted floor—he is pretty soon disabled by the dust he finds? We might think the floor was tolerably clean; but there is almost always dust enough to kill him in a short time, if he can't fly away and escape the danger. I have often picked them from the floor and carried them outside to some green leaf, and watched the curious apparatus you have described, while the little fellow goes to work to clean himself up. He will work patiently a long while before even attempting to try his wings. He seems to be provided with an apparatus also, to brush off these delicate membranous wings, as well as his feet, antennæ, head, and eyes. I have often made the children laugh by showing them a bee combing his head. He throws his arm across his neck, as it were, and then slips it over his head in such a way as to brush the dust off forward; and from your engravings, we notice that these beautiful fringe-like hairs help him to dust himself off. Perhaps you propose telling us something about this before you get through. Well, after he has brushed off his head, combed his hair, brushed down his whiskers, pulled down his vest, and scratched himself all over, as it were, he spreads his wings and goes off, a clean, bright, happy bee. Now, friends, when you see your little pets hopelessly floundering on the floor, do take them out to God's green fields, and give them a chance for life. Bees were not made to be indoors—that is, doors made by hand. In their own little houses, no particle of dust is ever permitted to remain. Was there ever a housewife so successful (Mrs. Root is a great foe to dust and litter, but she can not come up to the bees) that she could keep every crack and cranny of her home so exquisitely neat as is the interior of a bee-hive during the roar and hum of the busy season? No matter if thousands are tramping out and in incessantly, no particle of dust ever finds a lodging-place. Every thing is scraped and polished—yes, and varnished too; and come to write down

the real facts of the case, the whole establishment is kept constantly as neat as wax. Funny, isn't it? But you see the bee has a beautiful apparatus for doing it, as Prof. Cook has told us; and he not only has the tools, but he *uses* them.

THE REVISED EDITION OF THE A B C OF CARP CULTURE.

A COUPLE OF ILLUSTRATIONS TAKEN FROM THE BOOK.

SIXTEEN pages of this work are now out; and as many of our bee-keeping friends are also interested in carp culture, we shall give some sketches of the new book from time to time. Below are a couple of pictures. The first one is intended to help answer the question as to how large we may expect carp to grow



HOW LARGE DO CARP GROW?

The individual in the picture is supposed to answer the question something as follows: "Well, I can not say, friends, just how large they might grow in time; but this fellow is probably one of the first I put into my pond when I first started." The question now arises, "How old is the man in the picture? and is this picture supposed to represent about 1890, '95, or 1900?"

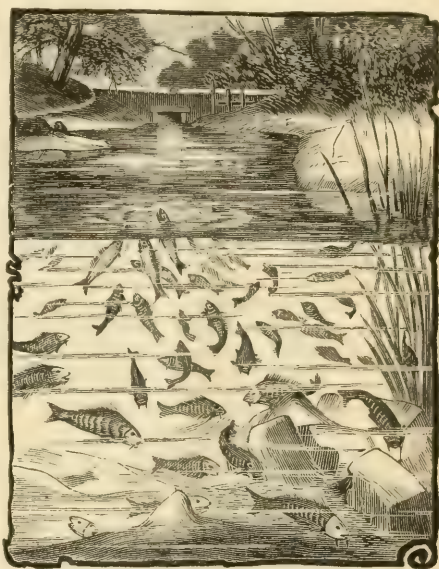
The only authority I have for saying that fish reach the size shown in the cut is the following from George Finley, author of "The German, or European Carp."

"This fish grows for many years, and to wonderful proportions. It has been captured in the Danube weighing sixty-seven pounds; and it is said that it has been taken in Lake Como weighing two hundred pounds; but the latter looks a little 'fishy' and is referred to only because read of somewhere. But that this fish grows to fifty and sixty and even seventy pounds weight, and lives over a century, is so well authenticated as to be generally believed."

Now, perhaps a good many who have carp-ponds full of carp have never had a view of the way the fish behave themselves under water; and the following sketch is intended to show it as well as I have been

able to gather from their behavior while in our pond, and in a reservoir in the central part of our greenhouse.

Perhaps every one who owns a greenhouse may not know that carp make beautiful pets, to be kept in a reservoir or tank in the central part of the house, during the winter time. They very soon get to be so tame as to feed from your hand, and nibble your fingers; and for variety you may have a few gold-fish with them. They get along



FISH-LIFE UNDER WATER.

very nicely together; and as they swim about and amuse themselves, occasionally sticking their heads above the surface of the water, their actions very much resemble the cut above.

UNFINISHED SECTIONS, VERSUS SECTIONS OF FOUNDATION.

TO WHAT EXTENT CAN UNFINISHED SECTIONS BE USED IN SUPERS WITH PROFIT?

I AM a producer of comb honey, and have had some experience with unfinished sections. I partly agree with Mr. J. A. Green in his second drawback. It is a good deal of trouble to keep them free from dust and mice; but when we have them it will by no means pay to melt them up. I don't think I would burn sections that have been used once (unless badly soiled), but I would save them for home use. Every producer of comb honey will find out, as I have, that it does not pay to fill the cases full of these unfinished sections. Last year I had hives side by side, one filled with unfinished sections and one with fdn. starters, and the ones with fdn. will almost invariably be finished first. We should manage to have as few as possible at the end of the honey-harvest. But when we have them they come very handy to start the bees to work in the sections at the beginning of the honey-flow by putting three or four in each case, but not any more than that.

HOW LONG WILL A SWARM REMAIN CLUSTERED ON THE LIMB FROM DATE OF SWARMING?

One of my colonies swarmed July 4th, and remained on the limb till September 12th. There was no comb built there, as I thought there would be.

MY REPORT.

I commenced in the spring with 40 colonies, increased to 45 by swarming, and got, on an average, 15 lbs. per hive. We had a light flow of honey the first of September, and my bees made enough to carry them through winter. This honey had a very bad odor, and could be smelled some distance from the apiary. Will it do any harm as a winter food? This has been the poorest season since I have kept bees. Most of the bees in these parts are kept by farmers, in box hives, and will starve this winter.

J. E. HENDERSON.

Roney's Point, W. Va., Oct. 24, 1887.

Friend H., your statement is astounding. Of course, the bees didn't carry enough honey in their sacks to last them five or six weeks, so they must have gathered honey and passed it around from mouth to mouth, without having had enough at any time to build combs. I have seen small clusters exist in this way for perhaps a week or ten days, but they gradually scattered about or got lost. I am inclined to think your honey will do no harm as winter feed, especially that which was gathered in September.

EMPTY COMBS.

How to Fill Them with Syrup or Honey, for Feeding Bees.

C. C. MILLER MAKES IT SO PLAIN THAT EVEN A CHILD MAY UNDERSTAND IT.

IN GLEANINGS for June 1, 1886, page 463, you say that Dr. C. C. Miller, in his new book, says that, when he has a colony to be fed, he does it by filling empty combs with syrup, in a manner similar to that given by our old friend Quinby, years ago. Now, will you please tell me, either in a letter or through GLEANINGS, how they manage to get the syrup into the empty combs, and oblige? I have tried to do it, and failed. I suppose it is all easy enough when we know how. N. L. GERRISH.

Nottingham Center, N. H., Oct. 14, 1887.

Dr. Miller replies:—

If you lay an empty comb flat upon a table, and pour a liquid on it, instead of the liquid immediately running into the cells it will lie contentedly upon the surface. If the liquid fall from a considerable height, so as to strike hard upon the surface, some of it will force its way into the cells; so if you pour syrup upon the comb out of a pitcher, holding the pitcher 3 or 4 feet above the comb, you will succeed better than if the pitcher be held only a few inches above the comb. Even then, if a portion of the syrup falls in a compact mass upon an empty cell it can enter the cell only by displacing the air contained therein; and if the syrup presses with equal force over all parts of the mouth of the cell there is no chance for the air to get out, and the cell remains empty. In other words, if a drop larger in diameter than the cell falls centrally upon the cell, the chances are that it will simply act as a cork to cork up the air that is in the cell; but if the drop be so small that it strikes nowhere upon the sides of the cell, there is nothing to hinder it from

going directly to the bottom of the cell; and if it strikes upon one side of the cell it will still make fair progress bottomward. So the smaller drops we can have as it falls, the better success we shall have; and to this end, instead of a pitcher we will take a watering-can from which to pour the syrup. But thick syrup will not readily pass through the rose of a watering-can, so we must have thin syrup; and as we desire syrup (at least in the fall) no thinner than can be made by using 5 lbs. of sugar to one quart of water, we must thin it by using it hot, taking care not to have it hotter than about 125°, as beyond this there is danger of making the combs so soft that they will give away. So now I think we have reached the essentials: We lay our comb flat upon the kitchen-table, and pour upon it from a height of several feet, through the rose of a watering-can, syrup heated to 125°. Whoever fulfills these conditions will, I think, make no failure in filling his combs. He will, however, not leave the table or the floor of the kitchen in the best condition; and any further effort needed is simply to prevent waste and muss, unless it be to make the work lighter. To this end, get a tin box made about two feet deep, about half an inch or an inch longer than the top-bar of your brood-frames, and about an inch wider than the outside depth of the frames. It will cost a little less to have made a wooden box of the above dimensions, without top or bottom, and then place it in a tin pan three or four inches deep, and large enough to contain the box. In either case, in one of the lower corners of the tin box (or of the pan) a hole should be made with a spout, say an inch in diameter and about three or four inches long, through which the waste syrup can pass to be caught in a pail or other vessel standing under the spout. Of course, the whole affair must be elevated sufficiently to admit of the pail standing under the spout; and the operator, if necessary, can stand on a box to make him high enough. Now take an old tin quart fruit-can, hold it upside down over a very hot stove or fire till the solder melts so the top can be easily knocked off. Then with a 2½-inch No. 12 wire nail, or a punch of the same size, punch holes in the bottom of the can. Punch the holes from the inside, so the projections shall be outside. Make a row of holes around the outer edge, about ¼ of an inch apart; ¼ of an inch inside of this another row, then inside of this again, filling up the bottom with holes about ¼ of an inch apart. Near the upper edge, punch two holes on opposite sides, and into one of these holes pass a piece of wire about a foot long, fastening together the two ends by twisting, then serve the other hole the same way. Tie one end of a string into each of the wires, and tie the other ends of the strings into two nails or staples in the ceiling, five or six feet apart. Let the can be hung about three feet above the bottom of the tin box, and let the strings hang crosswise (not lengthwise) of the box. Put a comb in the bottom of the box, then pour a dipper of syrup rather rapidly into the can, and with the left hand keep moving the can so as to fill all parts of the comb; turn the comb over, fill the other side, raise the comb and let it drain a few seconds, then put it into a super, or hive without a bottom, to slowly drain off. It is, of course, well to have a pan, sufficiently large underneath to catch the drip, and the combs may be tiered up five or six high. If you don't want your clothes unnecessarily daubed when stooping to lift the frames,

slip the can into the dipper and hold it out of the way. To prevent the holes in the can from becoming frequently clogged, put in the top of the can a little wire strainer, such as are used for straining herbs.

C. C. MILLER.

Marengo, Ill.

BEE-STING POISON AS A REMEDIAL AGENT.

ITS USES AND EFFECTS ON THE HUMAN SYSTEM.

IN GLEANINGS for June 1, 1886, page 456, you say: "Now have the friends who buy the poison-sacks (of the honey-bee) been aware of the curative properties of the remedy for croup and similar diseases?" I hope, before you again revise the A B C of Bee Culture you will fully acquaint yourself with all the uses that are made of the honey-bee. If you will step into the office of some of the physicians of Medina and call for Herring's Revised Materia Medica, and look at page 92, you will, I trust, feel that your time has been well spent. Please pardon this suggestion, as I took it for granted that you are ignorant, allow me to say negligently ignorant, of the many uses that the poison of the honey-bee is made use of in sickness. The poison of the honey-bee, *Aptum virus*, and *Apis mellifica*, can always be found in the office of more than ten thousand physicians in the United States, and ranks with the most precious remedies.

If many bees be placed in a wide-mouthed vial, well shaken, and drenched with five times their own weight of dilute alcohol, we have a preparation known as *Apis mellifica*. If we press the poison from the honey-bee on to a piece of sugar or into a vial, we then have a preparation known as *Aptum virus*. By triturating the poison-sacks in mortar, with sugar or sugar of milk, we have the same; viz., *Aptum virus*. But any of the preparations above named are still too dangerous to be used until further diluted. By careful experiments it is found that there are about forty distinct abnormal symptoms set up after repeated doses of bee-poison taken internally. Some of the symptoms become dangerous if the use of the poison be long continued, especially the moral and mental symptoms growing out of the continued use and increased dose of the poison. How many of the readers of GLEANINGS would desire to undergo the mental and nervous suffering which father Langstroth underwent from the effects of too much bee-poison in his system? The symptoms related by father Langstroth correspond with the provings of *Apis mellifica*, made and published by Dr. Constantine Herring, fifty years ago. I will not mention the numerous diseases that bee-poison is used in, but will say, in answer to the editor's inquiry, that we know that bee-poison is good in croup as well as in asthma. I will add, that the continued use of bee-poison internally will greatly increase the fear of death. Those of us who handle bees much, standing and working over open hives, inhaling the odor of the bee-hive, should not be surprised if we have some queer symptoms, though we may not be much stung by them. I mean by this, that it is my belief that inhaling the odor of bees is poison to some people. I know of no remedy that is a sure cure or a palliative for the sting of the honey-bee. I have noticed, that when I have applied iodine or aqua ammonia to the place where stung, and either

er of the remedies applied cause considerable pain, that the swelling would be less. There are, without doubt, many drugs that would neutralize the poison of a bee-sting, if the remedy could be forced down into the puncture made by the shaft of the bee, to the furthest depth where the poison was deposited. I suppose that many of the readers of GLEANINGS have felt pain in decayed teeth immediately after having been stung. I have experienced this feeling many times after being stung on the finger.

J. W. PORTER, M. D.

Ponca, Nebr., Sept. 27, 1887.

Friend P., we have consulted the book you mention, and thank you for directing us to it. It is true, the poison of the bee-sting is recommended for a great number of diseases, as you say; but the matter as we found it in the book is hardly suitable for a bee-journal, on account of technicalities, etc. I believe, however, that it is little used by allopathic doctors. If the odor from the poison inhaled in handling bees is detrimental to some people, it ought, if I am correct, to be beneficial to some other people. We have had pretty good evidence that it is valuable in certain cases of rheumatism. Now, inasmuch as a great many people have been improved in their general health by engaging in bee culture, may it not be they need just this corrective you mention? I do not know that I ever experienced any pain in a decayed tooth by being stung on some other part of the body; but I remember distinctly being surprised to find a clear and distinct pain located somewhere quite remote from where the sting was inflicted.

UNFINISHED SECTIONS IN THE FALL.

WHAT TO DO WITH THEM, AND HOW TO KILL TWO BIRDS, ETC.

FRRIEND ROOT:—This is one of the queries to which I have given much study, and have experimented in different ways. It is a very dauby, unpleasant job to extract a thousand or more sections; and unless they are set back upon the hives to be cleaned up by the bees they are all stuck up with granulated honey in the spring, which the bees can not use and do not like to clean up; in fact, I would rather have a section of good fresh foundation than such a dauby one.

The next worse thing I have found is to place these unfinished sections back on the hives in the spring, just as they are taken off in the fall. As some of the honey has soured, some of the cells are granulated solid. Some of the combs are cracked, as the result of frost and cold. All things considered, I think it one of the most discouraging and disagreeable tasks we can impose upon the bees.

By accident I discovered that the changing or moving of sections in the fall had a tendency to cause bees to carry the honey below. I caught on to the hint, and now have no trouble in making them carry it all below, when and where I want it, leaving the sections in the best possible condition for another season. As I am usually very busy, I try as often as possible to "kill two birds with one stone," so I take off my last honey, and, as far as possible, prepare my bees for winter at the same time as follows: Commencing at the first hive in the first row, I remove the surplus crates and

zinc honey-board, examine the brood-nest to see if they need stores, and how much: if none, they are then provided with the chaff cushion and are ready for winter.

The crates of sections are then taken to the honey-house and emptied; the salable ones are put away, and the rest that contain honey are uncapped and set back in the crate. Those containing no honey are crated up by themselves, and put away for another season. The process is continued all through the apiary, with this exception: Whenever I find a colony lacking in stores they are given enough of these unfinished uncapped sections to make up the deficiency, and I have never failed to have it all carried down, and the combs left bright and clean as new dollars, and in readiness for another season. It is a little slow and tedious; but when you get through you have a big job off your hands, all at one effort. I find you may leave the sections on untouched until December, and the bees will not carry the honey down—many of them not even the uncapped ones; but by removing, as I suggest, they will not only remove the honey from those you uncap, but from all the rest; and I venture the assertion, that at this writing there is not a pound of honey in unfinished sections in my apiary; and a glance at the beautiful bright combs would convince any one that they are too valuable to melt up and burn.

GEO. E. HILTON.

Fremont, Mich., Oct. 25, 1887.

Friend H., you have given us an excellent suggestion, any way; and since you mention it, I wonder your plan has not been thought of and used before. May be it has. Even if it is tedious, it is worth something to me to know that my implements and materials for next season's work are all nice and clean, and put away in good order. I feel a good deal as my wife does when I urge her to come down to the garden or carp-pond, without waiting to wash up the supper-dishes. She says, "How in the world can I enjoy myself, and have a good time, when I know that the supper-table is all in disorder?"

THE COMBINATION SYSTEM.

SOME IMPORTANT FACTS AND NOVEL SUGGESTIONS FROM J. A. GREEN.

ALL bee-keepers know that bees will begin work sooner on empty combs than when they are obliged to build. This is particularly the case when the honey-flow begins gradually. Very often, colonies provided with combs will make quite a show in the surplus apartment before those obliged to build their combs have made a start. It is of great importance that they should begin to put honey in the surplus apartment at the very first of the honey season. They seem to work better afterward when their first honey goes above; and they are not nearly so likely to fill the brood-combs with honey, and so crowd out the queen.

To get the bees started above as soon as possible, I have for several years placed, on a few of the hives which I intended to run for comb honey, a set of extracting-combs. As soon as the bees were well at work in these combs they were taken away from them, and sections put on, in which the bees

went to work readily. The combs were piled up on hives to be run for extracted honey.

As the honey-yield drew near its close in the fall, instead of putting new sections on comb-honey hives, all sections were taken from a part, and extracting-combs given them. The unfinished sections were placed on other hives to be finished.

As I said, I have practiced this to some extent for several years; but it was not until within the past two years, when I began to use zinc honey-boards, that I realized that by their use it was possible to carry out the principle into a complete working system. Some experiments with shallow combs helped me to come to this conclusion.

In brief, then, my combination system for producing comb and extracted honey is this: Place a set of extracting-combs over each colony at the beginning of the honey season. For several reasons it is better that they should be shallow—say six inches deep. Have a queen-excluding honey-board between these combs and the brood-chamber. As soon as the bees are well at work storing honey, remove the combs from about five-sixths of the hives, more or less, and substitute sections, piling the cases of partly filled combs over the remaining hives. The colonies over which these combs are placed are to ripen the honey and finish filling them. Italians are best for this work.

Toward the close of the season, reverse this process. Take all the sections away from a part of your colonies, replacing them with combs and making other bees complete partly finished sections instead of giving them new ones.

The advantages of this system are: First, getting the bees started, without loss of time, at the beginning of the season. Second, producing a superior article of extracted honey. Third, getting rid of a large part of the annoyance and expense of unfinished sections in the fall.

With regard to the second advantage, while it is perhaps possible to ripen honey artificially so as to produce a good article, I am firmly persuaded that, in general practice, the bees can do it better and cheaper than we can. I think there is no way by which a really good article of extracted honey can be produced as cheaply as by giving the bees plenty of room to store it, and then plenty of time to ripen it.

Now let me answer in advance some of the objections that may be made to the system:

It might be said, that it is too much bother, too much manipulation. With hives that are adapted to it, the manipulations are simple and require little time. All surplus cases, whether for comb or extracted honey, should be easily and quickly interchangeable. You are sure the queen is in the brood-chamber, where she belongs. A few shakes will remove nearly all the bees. If desired, the cases may be placed under a tent or in a screen-house until all have left them, though I have never found that the few bees remaining did any harm. Remember, all this work is done when honey is coming in.

Will not the change from combs to sections make the bees swarm? All I can say to this is, that my bees do not do so. Even if it should have that effect, I am not sure that it would be any disadvantage. The swarms would come early, and it is from early swarms, properly managed, that we get the most honey. Try it and report.

J. A. GREEN.

Dayton, Ill., Oct. 24, 1887.

Friend G., I do not know that I ever before heard the idea suggested, of starting the bees first on a set of combs in the upper story; and without having tried it, it seems to me it is at least, in some respects, wasteful to have the bees suddenly stop after they are well going. You know, when the tiering-up process first came out everybody was telling what a saving it was, compared to taking a set of sections right away and making the bees commence on a new set. Different writers suggested that probably the bees got disappointed, for sometimes they would not start a new set at all, even when they had been working heavily with the old ones. By putting an empty case under the one nearly filled, however, they passed right through to their old one, and kept on at work. Now, if we use the shallow frames for extracting, why not raise up this set of shallow frames and leave them on the hive until they start in the one containing the sections? Heddon's shallow brood-frames would work nicely in this way, I should suppose.—Your plan of lessening the number of unfinished sections at the close of the season is certainly a very desirable one.—In regard to getting nice extracted honey by letting the bees do their own ripening with a large number of combs, it accords exactly with my own experience; and the honey was beautifully ripened when I had three Simplicity hives full of combs standing over the brood-chamber.

A GOOD REPORT FROM TEXAS.

12,000 LBS. OF HONEY FROM 154 COLONIES, IN SPITE OF THE POOR SEASON.

THIS has been a poor season for honey in this part of Texas. I had 154 colonies (in two apiaries) to start with, and increased to 179 colonies, and took about 12,000 lbs. of honey.

This is about half an average crop for my location. The cause of the failure was winter and spring drought. We had scarcely any rain for 22 months, previous to the 15th of last May. As our best honey-flow is in May, the rain came too late to do much good in the way of making surplus honey. My bees are in better condition than at this time last year. They are strong, and have one or two thousand pounds of honey—more than they will need to winter on, if the spring is as early as usual.

THE DISTANCE BEES FLY, AND WHAT RACE OF BEES FLY THE FURTHEST.

I see in a late number of GLEANINGS that some of the fraternity do not think bees will fly very far for stores. I have had some experience in that line, and will give it for what it is worth. In the first place, my apiary and the Pafford & Edwards apiary are about 8 miles apart, and the bees always work as strong half way between the two apiaries as they do near home. These apiaries were started in 1883 with black bees, and have been Italianized since; and when we knew there were no other Italians in the county we have found them working five miles from home. The black bees are hardly ever found over one and one-half miles from the hive here.

There has been a sharp flow of honey from a species of sage this week, none of it nearer than two miles of my apiary. The bees all went in one direction, and in such numbers that a neighbor and my-

self started on their trail to see what they were working at. About a quarter of a mile from home we met a lady who told us that a swarm of bees passed over her house, going the way that we were. It was the bees going to work, and we followed them and found the nearest ones two miles from home. I am as well satisfied that they went five miles as if I had followed that far and seen them at work. The prospect for a big crop of honey next year is good. We have had good rains this fall; and with one or two winter rains, the crop will be almost a sure thing.

D. M. EDWARDS.

Uvalde, Texas, Oct. 19, 1887.

Friend E., your report is indeed refreshing after having had so many poor ones this season. I am glad to know that you have enthusiasm enough to follow the bees, and see where the honey comes from.

PREPARING FOR WINTER.

E. FRANCE'S METHOD.

BETWEEN the 1st and the 15th of September we inspected all of our apiaries, to find out if they were all in good condition to winter. We have been having some fall flowers in most of the places where our bees are located, and, as a result, we found five of the six apiaries with plenty of honey to winter on. One apiary we fed 300 lbs. of honey. We use the pepper-box feeder, quart size, putting two feeders on a colony at once, which will be six pounds of feed. Usually they are emptied in 24 hours. A few colonies will take another day. We like those feeders the best of any. We have a honey-board $\frac{3}{4}$ inch thick, over each colony, with two $1\frac{1}{2}$ -inch holes through them, over which we place the feeders. The bees come up through the holes in the honey-boards, and take the feed down into the hive. The feeders are never in the way of the bees. They don't need to be taken off as soon as empty, as they are not in the hive but on it, and don't in any way interfere with the working of the bees inside of the hive. Of course, we have an outside cover to our hives, under which the feeders are put. No outside bees can get at the feed unless they go into the entrance of the hive, which they are not allowed to do. We can feed any time of the day, no matter whether the bees are flying or not, and no robbing will be started in consequence. The year 1885 we fed 6000 lbs. of honey through the last of August and first of September. One yard of 100 colonies we fed 1800 lbs. at 3 feeds, giving each colony two feeders at a time. If the bees are flying we put up our extracting house, or tent, in which we fill our feeders, then take them in a box, 12 at a time, and set them on the hives under the top cover. If we have fed before, and there are empty feeders on the hives, we exchange the empty feeders for full ones, taking the empty ones back to the tent to be filled. We can open one of our quadruple-hive covers, exchange feeders, and close in half a minute, so there is no time for outside bees to steal. We carry our feed in kegs holding 160 lbs. Each keg has a large faucet, or honey-gate, with which our work is facilitated. One man fills while another puts on or exchanges. When we have got around, all being fed in that yard, we pick up our traps and go home.

We usually ascertain if there is feeding to be done, by the last of August or first of September, when we feed immediately if necessary all that we

propose to do. At that time there are usually a few fall flowers for the bees to work on, so the bees don't crowd after honey very bad.

Our bees are now in very good condition. They are strong, and have plenty of honey. In all there are about 500 colonies; or, more exactly, 514. Two or three in each yard are queenless, but I don't know positively just how many, so we call it 500. How comes it that there are so many queenless? We seldom look over all our bees after we finish extracting, which usually is about from the 10th to the 20th of July. This year we went over all the last of July, to see if all had good queens. In every hive where there was no laying queen, we put in one or more combs of young brood and eggs, that the bees might raise a queen if they had none; but after all, there will be some failures. I don't know but that the king-birds have had something to do about it, by catching the young queens when they are out to meet the drones.

QUEENLESSNESS, AND HOW IT MAY SOMETIMES BE DETECTED WITHOUT OPENING THE HIVE.

Just now very few hives have any brood at all, or eggs; but I can generally tell if the bees are out on the wing pretty lively whether there are any queenless colonies, by walking over the yard and noting the actions of the bees, especially at this time of year. There will be but few bees in a queenless hive, and a good share of them will be about the entrance, keeping guard, very few flying off. Open the hive and very likely the first thing we notice is a lot of drones and a few bees. Those drones have no business in so weak a colony, if they had a good queen. What do we do with a queenless colony? If discovered before the first of September, give them some good brood-combs, some of them containing eggs. But if queenless at this time of year, we don't do any thing with them. What few bees there are will take care of the combs until the weather is too cool for the worms to make much headway on the combs. If the combs contain considerable honey they could be used to fill out some other colony that was short of honey. We generally leave them as they are, and let the other bees take the honey when they find it. Doesn't that set the robbers at work on other colonies? Not with us, strange as it may appear. We always let our bees clean out the honey in any hive that has lost its bees from any cause, and I never thought that there were any bad results. In fact, we can not very well help it. The most of our bees are several miles from home, and we seldom see them after the extracting is done, until we fix them up for winter. After they are in winter trim we don't see them until warm days in March. We aim to have plenty of honey in the hives to last them until they can gather in the spring. A little too much honey is better than not enough. If any colonies die in the winter, the other bees take care of the honey during the warm days in the spring. Then if a swarm deserts its hive in the spring, the other bees are sure to take the honey that is left, and very quickly too. Now, in the last case if it is seen by the apiarist that the bees are engaged in carrying out the honey, which is best, to take the honey away and put it where the bees can not get at it, or let the bees finish it up where it is, I think the safest plan is to let it alone. If we take the honey away, the bees will crowd into other hives, and may overpower them and carry off their honey, when, if we had let the bees work on the honey until they had fin-

ished it, they would keep on looking for more in the same place. Finding none they would quit.

FRANCE'S METHOD OF ASCERTAINING THE AMOUNT OF STORES.

How do we know that the bees have enough honey to winter? Do we weigh it? Do we open every hive to find out? No, we don't do either. We don't want to open hives late if we can help it. We go to a yard, and, no matter how many there are there, we scarcely ever open over ten colonies. If we find those ten all have, in our opinion, plenty of honey (we guess by the looks of the combs) then we decide that that yard will do, and don't open any more, as all have had the same chance. But if we should find a doubtful one, then we would open more. We don't take the combs out. We turn back half of the top cover over on to the other half, then pry up the two honey-boards that are uncovered. Now, if the sun shines we can, by smoking the bees down, see all we want to without parting the combs. But if we can not see how much honey they have, without parting the combs, then we part them, and sometimes we lift out some of the combs, to make sure that we know just how they are off for winter stores. We always look into the last new colonies made during the season. If any are short of stores they are most likely to be the ones.

"SATISFIED IF THEY GET THERE."

I find in reading over our bee-papers that no two of us will work just alike. Each has his own style or way to manage his bees and do his work. We are something like a lot of farmers going to market, each taking a different road, but all leading to the same place. There may not be much difference in the roads; they are all satisfied if they get there. Each man knows his own road, and if there are any bad places on it he learns how to get over them easily. Another man would have more or less bother. So it is with the bee-men—each has drifted into his own channel, and he can work there better than anywhere else. Every man has a way of his own. But we can learn very much of each other, in a general way. We can even profit by another's mistakes. I read all I can get in relation to bee culture. Every little while I find something I can adopt that will help me along. I don't know that my scratching will help any one very much; but it may some of the beginners; and the veterans can profit, perhaps, by my mistakes. E. FRANCE.

Platteville, Wis.

Friend F., I have been in the habit of detecting queenless colonies in very much the same way you indicate; and after one has practiced he can judge pretty unerringly by simply seeing the bees around the entrance. Your method of ascertaining the amount of stores required is also about as we do it; but one who has not had practice might be very likely to make an expensive blunder. Your plan of leaving colonies where the bees have died out, to be taken care of by neighboring stocks, is recommended by some, I know—Dr. Miller, I believe, among them; but I do not believe it well for any but a veteran to let the bees go ahead in cleaning out even a hive containing no bees. It seems to me it is a bad plan to work on. Your concluding remark, about the different ways we have of working, is a great truth, and it should teach us to have charity one for another.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Oct. 15.

CHAPTER XLII.

Give, and it shall be given unto you.—LUKE 6:38.

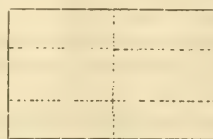
In Chapter XXXIX. I told you something about God's gifts—the gifts he was sending me day by day. Well, since giving me that spring, that still holds out during all these dry spells, of more than 100 barrels of water per day (when we have use for it), he has given me many other valuable gifts. One of them is a great lot of muck, leaves, sand, and rotten wood that I found in the bottom of our carp-pond. This accumulation of ages was one of the obstacles toward getting our pond so that it would hold water; and at first I felt almost disappointed when I saw the expense it was going to require to scoop it out and get clear down to hardpan. When I found, however, that this accumulation was a very valuable compost, I could not think of it except in the line of a gift. We have hauled out considerably over a hundred loads and put it around our raspberries, and there is a good deal to come out yet. The leaves and vegetable matter have doubtless been accumulating in this cavity for years; and the eccentricities of Champion Brook had, at some remote time, buried them up. Well, I can not very well share *these* gifts with you, my readers. It is true, we have been furnishing the spring water to the friends around town during the drought; but this great bed of muck I can not very well share with anybody, even if I were so disposed. But God has given me some other gifts that I *can* share with you, and I greatly enjoy the pleasure of doing it. These gifts are some inventions I have recently made. Our text says, "Give, and it shall be given unto you;" and it has always seemed to me that these great gifts come all the faster when we are busily engaged in giving them to our fellow-men. This verifies the promise in our text, you see: "Give, and it shall be given unto you."

My first invention is a little implement wherewith we can transplant any sort of a plant tree, herb, or flower, at any season of the year, without any possibility of injury. Of course, such arrangements have been used heretofore, but I think none so simple and easy as this one.

A NEW ERA IN TRANSPLANTING.

May be this invention of mine might be the means of bringing me a good deal of

money, if money were the object; but I think I shall enjoy ever so much more seeing you assisted by it, than I should be by making money out of it. In the first place, you are to go to a tin-shop and ask them for the very heaviest sheets of 14 x 20 tin they have. In our tin-shop, every little while they come across a sheet of IX tin, too heavy to work, and it is pitched to one side. When I made my invention I found that they had quite a lot of such sheets they had no particular use for. I directed one of the boys to set the squaring-shears so as to cut a sheet of tin into six equal pieces. The dotted lines in the diagram show where he made these cuts.



HOW TO CUT THE SHEET OF TIN.

Now, these pieces will be 10 inches long by $4\frac{1}{2}$ inches wide, or perhaps a fraction more. Make a bend on each end of each piece, the same as for locking together a cup or pail; then roll the piece up and lock the ends together (no soldering is necessary), so as to make the tin tube here shown.



TIN TUBE FOR TRANSPLANTING.

This completes our machinery. Before we go to work, however, we want a hundred or more of these little tubes, depending upon the amount of transplanting we have to do. Stand your tubes in wooden trays, or transplanting-boxes, such as are shown in Chapter XI.—transplanting-boxes for seedlings.

Set these boxes of tubes on a wheelbarrow, and go where your plants are. We will suppose that it is strawberries you want to take up. Gather up the leaves of your young plants and slip the tube over them, adjusting it so the crown is as near as possible in the center of the tube. Now set your foot squarely on the tube, and force the tube into the soil, say half its depth; then pick the tube up and set it back in your tray.

Go on to the next one, until you have a wheelbarrow-load of "potted plants." Yes, my friends, and they are just the nicest *potted plants* you ever saw in your life; and you can take them up and pitch them into the wheelbarrow, all in a heap, without any possibility of injury, either to the roots or foliage. The operation of forcing the tube into the ground cuts off the runners, so you have not even that to bother you. When you have got a load, run the wheelbarrow into the field where you are going to set your plants out. If the soil is as soft and mellow as it ought to be, you can scoop out the soil with your hands and set the tubes in half their depth, almost as fast as you can crawl along on your hands and knees. You don't need any firming, or any thing of that sort, for the plant stands just where it did originally. The roots are all spread out just as they grew; and the same dirt the plant was feeding from before you moved it, will feed it in its new location. In fact, the plants are just as well off as when in the old bed, and they are not crowded a bit. There is plenty of sun and air all around them, and not a weed to bother.

Well, we had got that far with our invention several months ago; but the difficulty of getting the plants out of the tin tube was what troubled us. We tried having a tube that would unhook, but that was a bungling operation. If the soil was loose, it let the ball of earth break and rattle off from the roots. Besides, the whole thing was rickety. You may be surprised a little to think I studied hard and long for a remedy, and that, when it was found, it was so simple there was hardly any need of making any fuss about it. Simple as it was, it made us send up a shout when we hit it. Well, the plan to get them out is simply this: Put a half or a whole teacupful of water in the top of every tube. We tried this at first; but Fred, who was helping me, said it would not work.

"Look here, Fred; try filling twenty or thirty of them with water; and when you have got the last one filled, go back to the first and see if it won't come out."

He took hold of the tin and pulled just a little, and it slid out just as easily as you might expect a chunk of butter to slip out if the can had been warmed. In fact, the plant, in its surrounding soil, was in a state of mud, and therefore slid right out. There it stood, the earth saturated with water, and nicely mulched with dry earth all around it. The operation of transplanting, instead of checking its growth, really gave the plant

new life. When your tubes are all picked up, pitch them into the wheelbarrow and go after another load.

You may say this arrangement can not entirely take the place of potted plants, for it can be applied only to bringing them from one part of the farm to another, or, say, from a neighbor who lives not more than four or five miles away. I have thought of this. The plants could be shipped in the tubes just as well as they ship potted plants in pots, providing the purchaser would pay for the tubes; or they can be slipped out and put in paper bags, or rolled up in a bit of paper, as they do potted plants, but you can not then get them into the ground quite as nicely as where you have the tins.

Every time I use these tubes I am surprised as well as pleased. They do the work perfectly, and we never had any sort of transplanting done so rapidly as we do it with these things. The size I have given is especially for strawberries, raspberries (where the plants are small), celery, cabbage, cauliflower, lettuce, and tomatoes. The especial advantage of this arrangement is, that you take enough good rich soil along with the plant to give it quite a start toward making a crop. It is not very expensive, you know, to make the plant-bed very rich. You can rake into it a heavy dose of fine old stable manure, and that at no very great expense. You can also, if you choose, add guano and bone-dust, so as to make it the very best kind of soil to push things into a magnificent growth. Now, when you take up your plants, you take along enough of this rich compost to almost make sure of a moderate crop, even if the ground you put them in is not up to the very highest notch. You may say the plants must stand very evenly, and at just such a distance apart in the plant-bed; to which I reply, we have found that it is by no means necessary. Transplanted plants are, of course, much the best for this or any other purpose; but during the past few months we have been taking lettuce-plants right from the seed-bed down in the fields, and setting them in the greenhouse. While in the seed-bed, they stood so thickly that forcing down the tin tube once would take away from three or four to a dozen plants. Well, we have found this, in place of being a detriment, gives the very nicest lettuce. Set your tube with three or four plants in it, or more, in the bed in the greenhouse, and then place others so as to be from six to eight inches apart, as you may decide. The plants in

the seed-bed were in a crowded state. The effect of putting them in the greenhouse, where the outside ones, at least, have plenty of room, is to make each little cluster of plants roll over and shoot out at each side, like a bunch of flowers in a bouquet, and the ground is soon apparently covered. When they begin to crowd, pull out the largest plants, and the others will, in a remarkably short time, push out leaves to fill up the space thus vacated, so you may get a continuous crop of nice lettuce right along, without making any fresh sowings. I think very fine celery and tomato plants—yes, and cabbage-plants—could be produced by this same process; and the labor of transplanting is nothing compared to the old way. In fact, you handle from a half to one dozen plants, where you formerly handled one; and there is something about the arrangement that seems to encourage the plants wonderfully, in starting right away to fill up the new space given them. Why, it seems to me this little arrangement is going to make a complete revolution in furnishing vegetable-plants for sale; that is, in furnishing transplanted plants. The labor of transplanting (in the old way) is so great that a good many have given it up, and fill orders for plants with the long tap-rooted spindling ones, just as they come from the seed-bed. By this new process, however, getting the plants out of the seed-bed into the new one, where there is plenty of room, is so quickly done it is scarcely any expense at all; and the best part of it is, the dirt is never completely removed from the roots. They are transplanted without being taken from the soil, and without stopping their growth at all. You can experiment on it during the winter, if you choose, with house-plants and with flowers; and a little later in the season, with early cabbage-plants.

Now, then, for the application of this device on a larger scale. You know it is a very difficult matter to transplant cucumbers. In the cut below we show you a nest of different sizes of these transplanting-tubes.



A NEST OF TRANSPLANTING-TUBES.

These large ones we have made of galvanized iron, with a stout wire around the top, so they are not easily bent or bruised by stepping on top of them. If you want to

take up a hill of melons or cucumbers, or a little tree, you will need to take one of the tubes, say from six inches to a foot across, according to the size of the tree or hill. Plant both feet on the stout wire, and settle it down by stamping one foot at a time. If the soil is mellow, your weight will probably sink the tube as far as need be. With very light soil, you may need a spade or shovel to push under the tube. If the tubes are deep enough, however, as shown in the cut, this is seldom if ever necessary. Have a place previously dug, to put the tree or hill; set the tube in, then level up the dirt nicely around it. Now you are ready to draw the shovel. Pour in the water, give it time to soak into the earth containing the tube, so as to make it all soft mud; slip out your tubes, nest them up in your wheelbarrow, and go for another load. The same arrangement can doubtless be applied to pretty good-sized trees. The nature of the soil would probably have something to do with it.

The great point in this invention is the facility with which we can spread crowded plants so as to give them room and air, and do it at the same time without stopping the growth, or interfering with the plants in the way that ordinary transplanting does. The nearest approach to it has been the arrangement for getting strawberries by potting. This has every advantage of potted plants, and nothing like the expense. The tubes are not nearly as frail as pots; and as they can be used so many times, they are not as expensive. You do not have to go along and place your plants in a pot, and mark it with a stone, as heretofore; nor do you have to wait a week or two for the runners to get the pots full of roots. You go into any strawberry-field, and get the plants you want, and that is the end of it. If your tin tubes are used with any sort of care, they will last for years. The cost of the material ought not to exceed a cent each. The cost of making should not be nearly a cent apiece. Our workmen will make them in quantities at the rate of one a minute.

There is still another use for these transplanting-tubes. In many towns it is customary to sell tomato, cabbage, celery, cauliflower, and pepper plants, etc., half a dozen or a dozen in a little box, the purchaser to take the box—dirt, plants, and all. Sometimes berry-boxes are used; and as they are the cheapest receptacle we can probably find for the plants, they are, perhaps, the best thing; but to plant seeds in these box-

es, filled with soil, and care for them until they are fit to sell, is a great deal of trouble, as you may know, if you have tried it. Besides, the plants do not have the bushy roots that transplanting gives. The very cheapest way of raising plants is to sow the seed broadcast in a seed-bed, for you can water and care for a great number at once. Well, raise your plants in just this way: When they have got so large that they are just a little crowded, push your tube over half a dozen or a dozen. Set it in the berry-box and put your fine compost all around it, in the corners, etc.; slip out your tin, and there you have it. Pint boxes will do nicely for five plants, and the quart boxes for ten, and you can sell them by the half-dozen or dozen, if you still prefer to stick to the old plan of selling by the dozen instead of by tens. Now, as the plants cost but little you can afford to put in one or two extra—say seven or eight plants, and call it a half-dozen. This will be charging enough for the smallest; and this way of doing business always pleases, as you may know. If these boxes are set close together, they can be watered and cared for with almost as little trouble as in the seed-bed. If the plants get so large they crowd before you sell them, separate the boxes three or four inches apart, then fill in between them with some soft peaty soil that will hold moisture nicely. Put them out in front, where everybody who passes along the street will see them, and you will have no trouble in making sales. If the plants are nice, you should get five cents for a pint box, and ten cents for a quart box. You may say this is not really furnishing transplanted plants. Well, this may be the case in regard to those in the central part of the berry-box; but if they are tolerably thick in the seed-beds, you can fill out the central ones, and leave a half-dozen in a circle, near the edge of where the transplanting-tube slipped down. This will give you the nice strong vigorous roots we so much want. The larger size of tube would probably be better for the quart boxes.

MARKET GARDENING DURING A SEVERE DROUGHT.

You will remember, that in Chapter XXXVII. I spoke of the prices we were getting for many kinds of produce during this season of drought. Well, we have had an experience that we never had before. It seems that cabbages have been scarce, and hard to raise, everywhere; in fact, I have not seen a nice head of cabbage this season

at all—no, not even in our large cities. They are small and soft. On our own grounds we had some nice cabbages, but they were of small size. They were the Jersey Wakefield. In fact, our best ones were those raised so early in the spring that nobody else thought of having any. We thought then that 5 cts. a pound was a good price; but during the drought in August we actually sold all the cabbages we could scrape up, for 10 cts. a pound. Just think of it! a dollar for a single head of cabbage! We didn't have any that we got a dollar for, it is true; but real nice hard crisp ten-pound heads of Jersey Wakefields, such as we had in abundance a year ago, would have brought a dollar each, without any trouble whatever. I do not suppose there were any who would have given us a dollar right out for one head of cabbage; but by cutting them into quarters we could easily have retailed a good many at 10 cts. a pound. A year ago last spring, by cutting a ten-pound head into quarters we sold it so as to get 30 cts. for it, and we thought that was wonderful. This year farmers came in from the country and wanted cabbages. We told them the price was 5 cts. a pound; but they replied that it did not make any difference—they must have them. Now, it has been my opinion that, by preparing the soil properly, and irrigating with judgment and wisdom, we could have raised ten-pound cabbages during this great drought; but some way or other we didn't succeed in doing it. Sometimes I was tempted to think that there was some mysterious agency at work to prevent the cabbage and turnip tribe from amounting to any thing; for our ruta-baga turnips acted just as contrary as the cabbages did. The strangest part of it was, they did not get any good cabbages in regions where they had plenty of rain this year—at least, that was the case to some extent. Now, at 10 cts. a pound we could raise cabbages in a greenhouse, and make it pay well; that is, if they would head up under glass; and I am just now very curious to know if such a thing has ever been done. We could sell nice little heads of Jersey Wakefield, even now, at 10 cts. a pound if we had them.

Last season, when our tomatoes wouldn't bring more than 50 cts. a bushel, we canned them. This year we made preparations to run our canning establishment again; but to our great surprise, Mr. Weed informed us that we could get *two dollars a bushel* for all the real nice tomatoes we could scrape up. It may be interesting, however, to

notice the way we did it. We took some clean new half-peck baskets out into the field, and picked the very nicest specimens, good sized, round and smooth. Then we gave good plump measure—heaping the baskets up well. The baskets were so nice and clean, and the fruit so handsome, that nobody hesitated to pay 25 cts. for a basketful. The crooked specimens, or those that were not so handsome, were put into peck baskets, and these were sold for 40 cts.; but the *little* baskets went off faster than the others.

I believe we had tomatoes from about the first of July until the first of November; and we have a few in one of our green-houses, even now. I have no idea of how many tomatoes we sold; but for a long time we had some eight or ten bushels a day. I tell you, it is fun to have a rousing crop when there is no opposition. At one time when it seemed unlikely we could sell all of our tomatoes in our town, I suggested to the boys that they go a mile or two out into the country, stopping at farmhouses. As they ran the wagon only in the forenoon, they could make these extra outside trips in the afternoon, and they did tiptop. We sold tomatoes at almost every farmhouse, as well as other things. Several trips were made to neighboring towns, within several miles, and they did fairly well on these trips.

Our favorite tomato this year, as last, has been the Mikado. It is true, the fruit is not all perfectly round and smooth; but it is so much larger than any other kinds, and so early, it gives us the most money. There is no question but that we are in great need of seeds saved from these finest specimens of

the Mikado; and to start the matter we saved enough ourselves to make perhaps a quarter of a pound of this choice seed, selected from the best specimens. It is a pretty hard matter to take your very largest, finest, and most beautiful tomato early in the season, when they command a good price, and sacrifice it for the seed it contains; but when you do it, you have got some seed that will probably be worth something. In fact, I should dislike to take a five-dollar bill for that quarter of a pound, judging from our experience in tomatoes this last season. Now, although almost everybody else complained that they could not raise tomatoes, we had an enormous crop, without a bit of trouble whatever. While tomatoes were rotting for everybody else, ours did not rot a particle; and as they were on that creek bottom that I have told you about, they suffered comparatively little from drought. There is one thing I did that may have counted something in our favor respecting freedom from rot. Quite early in the season, great whopping tomato-worms made their appearance; and they came in such numbers all at once that I directed one of the boys to make it his business to go clear through all of our tomatoes daily, and carefully pick off every worm. The first morning, he got, I think, a couple of quarts of these great horrid-looking creatures. The next morning he got about a quart, and so it was for so long a time that I began to think there was no such thing as getting them *all*. Finally, just before the tomatoes came into bearing, the worms became scarcer and scarcer; and when we gathered our fruit there was almost not a worm.

CHAPTER XLIII.

The high hills are a refuge for the wild goats, and the rocks for the conies.—PSALM 104:18.

The above text came to mind in connection with the matter of providing comfortable quarters for our fowls during the winter-time. Although many times the fowls seem to prefer to roost in the trees, I am quite sure they gladly avail themselves of a refuge when it is convenient for them. It has always seemed to me as if the most comfortable place for them would be inside of the hills; and since I have been studying springs and rocks, the matter has come back to me more and more. We don't all have hills, however; and the question suggested itself of making a nice little hill, or mound,

and having it grassed over. Where rocks are convenient, no doubt one of the nicest places in the world, not only for fowls, but for their nests, would be in the recesses of these rocks. Our friends in Kentucky, in the region of Mammoth Cave, ought to be happy in the facilities offered them, not only for warm retreats for domestic animals under ground, but I think I should like a house in a cave—that is, providing I could get plenty of sunshine into the cave as well.

I presume many of you have been deterred from keeping poultry, on account of the

expense of warm and comfortable houses. Quite an intelligent lady, who is a teacher in one of our schools, said she would be tempted to go into the poultry-business considerably, if it were not for the expense of suitable buildings for them during the winter; and I have been thinking of the matter for some time. The result of it is, I verily believe, another of those gifts I have been telling you about, and here it is:

A WINTER POULTRY-HOUSE FOR 50 CTS. IN MONEY, AND HALF A DAY IN TIME.

I have now actually in use a poultry-house containing a roosting-apartment, or bedroom, as the children call it; an eating, or dining room, as they have it, and a laying-apartment, or egg-depository. Yes, and we have a room specially for nice drinking-water. This poultry-house is, at the same time, so made that little if any frost gets into any of these different apartments, and yet the expense of the materials is less than half a dollar; and the time required to make it should not exceed half a day. The above sounds like a patent-right advertisement, does it not? Well, it is not any thing that I have to sell. It is to give away, and I am feeling happy this morning to think that God has given it to me to give to you. Would some of my juvenile friends like to make one? All right, boys. Come with me and I will tell you all about it.

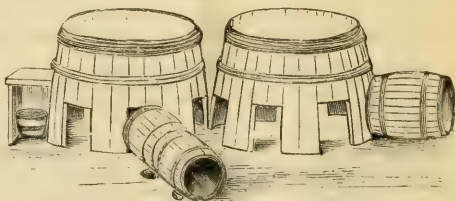
Go to your nearest grocery or dry-goods store, and purchase the largest hogshead you can find. Such a one as merchants often get crockery in is just the thing, only it wants to be large—the larger the better. It does not matter whether it has any heads or not; in fact, it is better without them, for you would have to throw them away if you got them. You ought not to pay over 25 cts. for such a hogshead, and may be you can get one for less than that. Now, while you are about it, ask him for two empty nail-kegs. These, also, are to be without top or bottom. You want also a barrel without top or bottom. Any kind of one will do that will not fall to pieces. You next want a box big enough to set over a common wooden pail. This box, also, is to have both top and bottom taken out. You now want to get these materials moved to some place where the soil is soft and mellow. If you raise celery, make the hen-house on the celery ground, after the celery has been dug for the winter. The location should slope a little toward the south. If it does not do so naturally, you can make it do so. If you

can have it protected from the north and west winds by buildings, trees, orchards, or something of that kind, all the better. Commence with your hogshead first. With a coarse saw, with a good deal of set in it, you are to saw the hogshead in halves, in the manner shown in the cut below.



HOW TO CUT THE HOGSHEAD IN TWO.

I think I would saw off the staves a little higher up above the bung-hole than the engraver has marked it; then the next two a little lower. But it depends somewhat on the size of your hogshead. If you can get a foot below the bung-hole and a foot above it each time, it will make your apartments a little higher. Saw straight across two staves (three if they are narrow) at once; and by the time you cut a little into the staves on the sides which are not to be cut off, you can probably get the point of your saw through between the two that are to be cut. In this way you can get through them pretty rapidly. When your hogshead is in two pieces, dig down to where the ground is tolerably hard, and level it off so it will slope a little to the south. Throw the soft loose dirt out of the way, in the form of a circle, until you have room to plant your utensils, as in the cut below.



OUR WINTER POULTRY-HOUSE BEFORE IT IS COVERED WITH DRY EARTH.

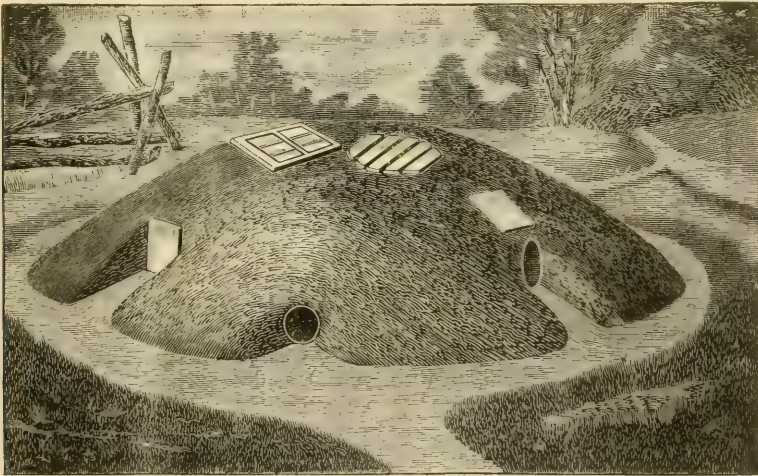
In the picture the engraver did not get the two halves of the hogshead placed together just as I meant to have it. The two halves should be so placed that two doors face each other, making an opening from one to the other. The right-hand tub is the roosting-

apartment, and you want to nail some cleats on so the roosts can be laid across from one side to the other. You can put in two roosting-poles, or three, according to the size of your hogshead or the size of your fowls. If you have Brahmas, two roosting-poles will probably be as many as are needed: if Leg-horns, you can put in three very well.

The barrel on the right-hand side is the nest-room. Some leaves or straw inside of it makes the nest. The two nail-kegs facing us are for entrances. We need two, because this opening is seldom or never closed; and we want a good big heap of dry earth over it, so the frost won't get in very far. On the left is our box containing the water-pail. This, also, is to be banked well with soft fine soil; all the other openings are to be closed with bits of boards or shingles, or whatever is handy. Now pack straw around over the whole arrangement, between the tubs, and anywhere that dirt might be likely to sift through. Then get your spades and shovels, and pitch on the dirt. You want to get it on nicely, and in such a way as to look, when finished, like the picture below.

the end of the barrel, and held fast by a stone or some other arrangement. Of course, you gather the eggs from this opening. The entrance to the box containing the water-pail is fixed in a similar way when the weather is very cold. The dining-room is to be covered with any old window-sash you can pick up. As the ground slopes a little to the south, the tops of the tubs will slope to the south enough to carry off water.

In the center of the dining-room is the dining-table. It is a funny sort of table, however, for it is made of a round tin can, high enough up so rats and mice can not jump into it. You can sink it into the ground a little, if you want it tall enough to hold a good supply of feed. Into this dining-table (or dining-can, if you choose) you are to put oats, corn, wheat, buckwheat, if you have it, culled beans, boiled until they are soft, scraps from the table, and as much of a variety as you can afford for the occupants. To make the dining-room pleasant, you want nice things on the table. I wonder if the boys and girls have ever discovered this fact. Perhaps you have found



OUR WINTER POULTRY-HOUSE THAT DOES NOT COST OVER A DOLLAR.

Now, please notice, you must dig down all around until you get at least six inches below the floor of the house inside; then let the entrance slope downward, so no wind or water will be running into it. The opening to the egg-apartment, also, should slant downward for the same reason. When the weather is so very cold there is great danger of the eggs freezing, you can have a chaff cushion put into this opening. The board that lies right over it is to be placed against

out already that my plan of feeding fowls is to leave feed right by them, all the time. I do like to see plump-looking "biddies;" and when I catch a young rooster, to be prepared for dinner (so he will be nice when we get home from Sunday-school on Sunday afternoon), I want one that is not all skin and bones, and my plan of feeding fills the bill exactly; and I think the best way to make hens lay is to give them plenty to eat; that is, while they have unlimited

range. Well, the engraver has not shown a very good roof over the roosting-apartment. It does very well for hot summer nights; but when there comes a rain, I think there had better be a board over each crack in that roof. If our engraver were obliged to stay in there during a rain, I think he would be in favor of the latter plan. But, how about the effect of the rain on our dry dirt? Well, you must sow grass-seed, so as to make a turf that will turn rain; but as you can not have that turf this winter, I think I would pile straw over the whole arrangement, laying something on top to keep it from blowing away, and raking it down so it will shed rain like a roof. You want to make a hole down to the sash, so as to let the sun down, when it shines, for this is the only way of lighting the establishment we have.

If the straw is not convenient, get a piece of oil-cloth or enamel cloth—some old piece will answer—large enough to cover the whole institution. Spread it over nicely, then cut out a hole where the tops of both of our tubs go, and tack the oil-cloth to the upper edge of the tubs. This will keep the earth dry; and if you have fine dry soil over them all winter long, there is very little probability that frost will get in. A straw mat, such as is used by market-gardeners, could be kept over the sash and roof to the roosting-apartment during the most severe weather.

The path around the domicile is to serve both the purpose of a path, and a ditch to carry off the water. Be sure the water can all get away. Fowls don't like to walk in water; they don't like to walk in mud when the sun thaws out the frost, either, as I have discovered. On this account I think I would put sand or sawdust all over the path. Be sure there are passageways enough to let the water out of the path quickly. If your ground does not slope enough, better have some underdrains to take the water away. They will pay on any garden or dooryard, aside from the benefit to the poultry-house. How do you get inside? Why, if you want to get into the dining-room, take off the sash and jump down. Don't set your great awkward feet on the dining-table, but step to one side of it. You can fill your water-pail while standing in here, instead of taking the board away and filling it outside, if you choose. You can also scrape out the accumulations of manure in the dining-room while you are standing

there. To clean out the bed-room, just lay the boards over on top of the sash; reach down and lift out the roosting-poles, and then you can clean out all accumulation, and put in some fresh dry dust and peat from the swamp, or whatever else you choose.

As we want to climb on top of the house frequently, I think I would have a post set in the north bank, to put your foot on when you step over on the edge of the tubs. We have had just such a poultry-house in operation for three or four weeks, and I tell you it is fun to see the fowls run out and in. During these frosty days they will put out over the grounds when the sun shines; but when a sharp wind comes up, or a cloud comes over the sun, and it gets cold, they will flop their wings and come back home, and run in as if that is the way chickens always do. How many fowls? Why, it depends on the size of your hogshead, and the breed of fowls, as I told you. We have seven full-grown fowls in ours, and a Brahma hen with ten young chickens. It would please you to see the chickens put out when the weather is cold. They will scamper over the celery-ridges, and take quite a run over across the field until they get cold, and then they will flop their wings and hurry back into the dining-room. These chickens were hatched in October, but I feel sure they will winter nicely with this arrangement; and they will require no care or attention at all, except to keep the dining-room table well supplied, and the water-pail replenished. That they like their quarters, is evident from the fact there is quite a jealousy if any of the other fowls come near it. I built it principally to get rid of some enterprising hens that were determined to scratch in my cold frames and plant-beds. The most troublesome of these so quickly assumed ownership of the new quarters, that, when I brought my Brahma hen and chickens to winter there, she disputed the territory at once. I came on the ground just in time to act as peace-maker. I found my poor biddy, that is so much given to scratching, with her head covered with blood, and the blood was running down to the end of her bill, so it came very near stopping her from breathing. I took her off to one side, and talked to her about the sinfulness of such behavior. She meditated quite a spell, and now she lets that old hen and chickens go where they please, and accepts her position—a sadder and probably a wiser hen.

To be continued.

ANOTHER BEE-MOTH.

AND ONE NOT DESTRUCTIVE TO COMBS.

ON the 12th of August last, Mr. J. H. Martin, Hartford, N. Y., sent me by mail, in a good strong box, some comb which contained several larvæ of some moth. He stated that these larvæ were quite abundant on his unused combs, but said they did no harm—indeed, he thought them a benefit, as the combs which were peopled by them were undisturbed by the common bee-moth, which, as all know, is really to be dreaded, as it mutilates the combs quite seriously. He asked for name, habits, etc., and wished, if of general interest, that information be given through the bee-papers.

August 20 I visited the apiary of my brother at Owosso, Mich., and found that he had been considerably troubled by the same insects. They were numerous on the combs; and though they did not mutilate the combs, they did spin their silken cords all over it, and drop their fecal pellets in the cells in a way that would not make the combs very pleasant to the bees. My brother also found the two insects, this small one and the larger well-known bee-moth, *Galleria cereana*, working side by side. Some of these were carefully placed in a breeding-bottle, and now I have the moth. We conclude, then, that eggs may be laid in July or August, the larva found at work in August, September, and October, and the moths found from October till spring. There is, doubtless, a spring brood.

The insect proves to be *Ephestia interpunctella*, Hubner, or *Tinea zea*, Fitch. Riley, in his 9th Missouri Report, p. 31, refers to this insect as *Ephestia zea*, and calls it a wax-feeding larva. Lintner, in his 1st Report, speaks of *Ephestia interpunctella* as the cabbage-moth. The same author, in his entomological contributions, speaks of *Ephestia interpunctella* as existing in both Patagonia and the United States. In Vol. VII., p. 23, Ontario Entomological Society, this insect, under the name *Ephestia zea*, is referred to as introduced by the grain exhibits at the Centennial Exposition at Philadelphia.

Dr. Fitch, in his second N. Y. Report, p. 320, describes this moth in all its stages. He was not aware that it had been previously described by Hubner, and so called it *Tinea zea*. He speaks of it as feeding on flour, and as especially common in stale Indian meal. Dr. Fitch also gives a good figure of the moth. This author concludes, that the moth might exclaim with Barlow, in his hasty-pudding:

"All my bones were made of Indian corn. Delicious grain!"

Dr. Fitch also calls attention to the fact that this insect, like the larva of the grain-moth, *Tinea granella*, fills the substance on which it feeds, with a web.

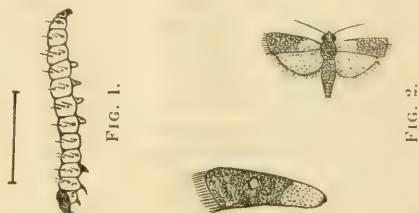
The correct name of this moth is *Ephestia interpunctella*. As it has never had a common name, so far as I know, I would propose that of lesser bee-moth. I have heard of it so generally this summer from several besides the two persons already referred to, that I think it is quite partial to honey-comb, or rather to what is stored in the cells of the comb. It feeds on the pollen in the cells, and injures the comb only by its web and filth, which I think would soon be cleaned out by a good vigorous colony of bees.

DESCRIPTION.

The full-grown larva, in general color and size,

see Fig. 1, resembles the apple, or codling moth larva, very much. It is about $\frac{3}{8}$ of an inch long, and pink in color. The head is brown, with darker jaws and lateral edges. It bears a few light-colored hairs. The dorsal shield of the first thoracic segment is also brown, with about $\frac{1}{2}$ of its area on each side much darker than the central third. This shield is crossed by a central dorsal light-colored line which passes on to the head, when it soon forks and extends to the base of each jaw. It also bears a few white hairs. Below this shield on each side, just in front of the spiracle, is a piliferous dark spot. Six rows of similar spots extend the entire length of the larva. The six spots divide the dorsal portion of each segment into nearly equal parts, though the dorsal space is a little broader. The lower spots on the thoracic segments are in front of the spiracles; on the other segments, below them. On the third from the last segment, the middle of the three spots is larger, and has a central white spot. The two dorsal spots run together on the two last rings in most of the larvæ. The under side of the body is light-colored.

The pupa is formed in a slight cocoon of light-colored silk in the cells of the comb. Very likely, if not confined it would leave the comb and seek some crevice or other concealed position. It is $\frac{1}{10}$ of an inch long, and of the usual form and color.



EPHESTIA INTERPUNCTELLA—LARVA AND MOTH.

The imago, Fig. 2, or mature insect, is a pretty little moth, and is accurately represented as to size, form, and markings, by the figure. It is $\frac{1}{2}$ an inch long, and expands $\frac{1}{3}$ of an inch. The base of the primary, or front wings, is straw color, while the opposite ends for something more than one-half their length have brown and dark scales intermingled, so the color is brownish purple. The brown prevails almost exclusively at a small central area, forming a brown spot. Two less distinct brownish spots are seen just back of this spot near the internal margin, the inner one being the larger. Two indistinct brownish lines extend parallel with the outer margin of these wings. The outer margin is fringed with dark gray. The posterior, or secondary wings, are light-colored, with a satin-like reflection, and broadly fringed with the same color. The thorax and abdomen are colored like the secondary wings, except that there are more dark scales, which slightly shades the color. The eyes are black; the head and antennæ dark gray, with a distinct bluish reflection.

These moths, like the common, or old bee-moth, *Galleria cereana*, Fab., belong to the family *Pyralidae*, or snout moths. They are so named because of their projecting palpi, which, as they reach out in front of the head, look not unlike a snout or nose. These palpi are marked features of all moths and butterflies, or, as we may say, of all lepidoptera. They are the mouth organs that usually curl up be-

side the tongue or maxillæ, of such insects, reminding us somewhat of whiskers. In these pyralids they project forward instead of curling up.

As already stated, these insects feed only upon the bee-bread, or pollen, and will probably do little harm. They will become more and more common, and will attract most attention after hard winters, when unused combs lie thick about the apiary.

Agricultural College, Mich.

A. J. COOK.

MR. COWAN.

FOUL BROOD, AND HOW SUCCESSFULLY CURED.

I HAVE frequently read with interest and profit the communications of Mr. Cowan. That you can not speak more highly of him than he deserves, I am well assured, and I should like to meet and have a chat with both yourself and him, as I feel that you are both in some way friends of mine, though I have never had the happiness of meeting either of you. I have to acknowledge a debt of gratitude to the A B C of Bee Culture, though I was first led to keep bees and take an interest in them by getting hold of "The Manual of Bee-Keeping," by the late John Hunter. I have experienced all the vicissitudes which an inexperienced hand naturally will go through, from spring dwindling to foul brood. The last I remember, I treated with a strong hand. Having five or six colonies infected, I shook the bees from the combs into empty hives, burned all the comb, brood, honey, boiled the frames, and washed the hives with a strong solution of salicylic acid, a little of which I fed to the bees with the syrup, and never had any trace of the disease afterward. It was introduced by my buying an old-fashioned straw hive which was infected, and from which I transferred the bees (not the comb) to a frame hive.

I should now like to ask a question: Is February here too early to commence feeding bees? I used to begin in England (my father lived at the time in Norfolk, close to which place he has his parish) about the end of February, and feed gently till the honey began to come in. I am aware, that feeding is, so to say, a science, and I fear to stimulate the bees too early. In Texas I used your Simplicity hives, which I found admirably adapted to that climate. Here I should prefer the chaff hive, as my bees will have to winter outside. I always used a feeder made from some large-mouthed bottle (that French plums come in), piercing about twelve holes in the zinc lid. Then I had a square block of wood with a circular hole in it, covered with zinc on one side, the zinc in the wood having a long slit in it. This I placed over a hole in the cloth covering the frames, filled the bottle with syrup, put on the lid, reversed it, and set it in the hole in the wooden block. By simply turning the bottle round I could feed one or twelve holes, as I liked.

Montrose, N. Y., Oct. 22, 1887. J. S. CUMMING.

In regard to feeding the bees in February, friend C., I am not satisfied in my own mind whether it will pay or not; that is, when we have a February so mild that we can start the bees to rearing brood by feeding. My last experiments in that line were rather to the effect that it is risky and doubtful to feed in February, or March either. As our seasons run, I should say that here in the States we had better wait until April. Perhaps it would be well to have this question in the Question-Box.

REPORTS ENCOURAGING.

JUST BOOMING.

MY bees are booming. I extracted over 200 lbs. yesterday. I got 21 gallons from six colonies. I have a good many sections on, full of honey, and most of them capped over. I am reducing all my Simplicity hives by contracting the brood-chamber to seven frames. I tried five this season, and I find they work in sections, when other hives, just as strong in bees, that have 10 frames, will not. I put a swarm in one T-frame hive about June 1st, and have taken off 48 1-lb. boxes, and it has 24 1-lb. boxes on now, full of honey, and nearly all capped over. A second swarm from the same hive the above came from has made 48 lbs. I lost all my bees last spring while I was sick, but 19. I have 28 now in good condition, and I have sold six swarms.

J. W. MARTIN.

Greenwood Depot, Va., Oct. 12, 1887.

THE BEST HONEY YEAR IN FIVE, FOR TEXAS.

From 12 hives in spring I now have 25 hives in good fix for winter. During the season I extracted 1750 lbs. of good honey. This is the first honey year in five for this part of Texas.

J. N. HUNTER.

Leonard, Texas, Oct. 31, 1887.

IN GOOD CONDITION FOR WINTER.

My bees have done very poorly this year. However, they gathered fall honey and reared bees, so that they are in fine condition for wintering. Last winter I lost 9 out of 23. I have 27 now to winter. I get 12 cts. per lb. for extracted honey, and can sell all I can get.

M. MAPES.

Monroe, N. Y., Oct. 21, 1887.

2695 LBS. OF HONEY.

My report for 1887 is as follows: Spring count, 83 colonies; extracted honey, 2325 lbs.; comb honey, 370 lbs. They increased to 103 colonies, and I doubled them down to 75, and fed them about 500 lbs. of old honey to get them in shape for winter. The season has been very poor here, as it has been too wet for the bees to gather much honey.

Parksville, N. Y., Oct. 23, 1887. A. W. SMITH.

A POOR SEASON, BUT THE BEES PAID EXPENSES.

This season has been a poor one. I did not get more than one-fourth of a crop. I started with 38, spring count, and increased to 60 by natural swarming. I have taken 800 lbs. of comb honey and about 100 lbs. of extracted. The comb honey was all in one-pound sections, and two-thirds of it goldenrod. We had a good honey-flow here from the 1st to the 10th of September, and that is what saved us from buying sugar to winter our bees. My bees have paid expenses this season; and taking the demand and the price of honey at present into consideration, with the prospect good for fair prices next season, I am not discouraged the least bit.

Linkville, Ind., Oct. 19, 1887. JOHN KUNZ.

AN INCREASE OF 33 PER CENT, AND ABOUT 45 LBS. OF SURPLUS TO THE COLONY.

Although the season has been very dry with us in Canada (just dry enough to show the great superiority of Italians over the blacks), bees have done fairly, 29 of them giving me about 33 per cent of increase, and from 45 to 50 lbs. of surplus extracted honey to the stock, spring count. At date all are in

fair shape for winter. My loss last winter was very heavy—57 out of 94.

F. P. CLARE.

Oliver's Ferry, Ont., Can., Oct. 20, 1887.

REPORTS DISCOURAGING.

THE POOREST SEASON FOR BEES.

THIS year has been the poorest for bees that I have experienced since I have been engaged in the business. I started in the spring with 80 colonies in good condition, and increased to 115 by artificial swarming. I did not have any natural swarming. I moved about half of them to a place within reach of basswood pasture, and took 700 lbs. of basswood honey. They filled up in good shape for winter, while those in my home apiary had to be fed.

GEORGE BRIGGS.

New Sharon, Iowa, Oct. 23, 1887.

NO SURPLUS.

Bees have done poorly the past summer. Only one swarm from 21 came through the winter in good shape. No surplus honey, and it is evident that I must feed or unite some of the swarms in order to take them through the winter.

Waynesville, O.

G. S. SALE.

A REPORT DISCOURAGING FROM ARKANSAS.

This has proved to be a poor country for bees. Honey comes with a rush three times a year, with intervals of great scarcity, during which bees diminish in numbers; and when honey comes there are not enough bees, so they raise a quantity of brood, fill the lower story, then the flow ceases, and I get none. I have not eaten a spoonful since here. Perhaps I should do better if I fed liberally in those intervals of scarcity.

A. LAFOREST.

Fayetteville, Ark., Oct. 6, 1887.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

IS IT HONEY-DEW?

WE are rejoicing over a good season which came last week. It has brought out the fall blooms, and bees are working lively. They are gathering more honey now, as late as it is, than they gathered in any one same length of time this summer. They don't seem to work much on the blooms—mostly in the tops of large timber. I took the pains to examine the timber, in order to see what they were working on, and I find that there is any amount of small white tender-looking balls, from the size of a bird's egg to the size of an apple; and from these balls there runs a nectar closely resembling pure honey, and there is an immense quantity of these balls all over the forest, which is affording a splendid flow of rather dark honey; but it is well flavored, and in the center of these tender balls are pods, wherein is deposited a small white worm, or grub, which appears perfectly lifeless. What will this small white worm produce when fully developed?

This has been the poorest season for honey here for several years, or, at least, since I have been handling bees on frames. Bees did not average 20 lbs. of honey per colony, and good strong colonies were, ten days ago, in almost a starving condition. I have been feeding my bees until this present

flow of honey; and if it lasts eight or ten days longer, bees will not need any more feeding. They are at work by daylight, as cool as the mornings are. They have been idle so long they are making good use of the present flow.

B. G. LUTTRELL.

Luttrell, Ala., Oct. 10, 1887.

No, friend Luttrell, it is not honey-dew, but it is honey from what are called oak-balls. Although you do not say so, I presume the balls you describe are found on oak-trees. The matter was discussed in our columns in Dec., 1881, p. 601, and on pages 35, 82, and 182 for 1882, which see. On page 182 you will notice an engraving of a twig of the oak-balls. In regard to the insect that produces these balls, I should be glad if Prof. Cook would tell us something about them, or refer us to a description. I can not remember that the insect has been particularly written up by any entomologist.

ANOTHER GOOD REPORT FROM THE ASTERS.

The past summer has been very poor here for the bees as well as for the farmer, in regard to different crops, fruits, etc. There were, during white clover, about 30 to 35 days of very nice honey-gathering. Early in July the flow suddenly ceased. In the mean time there continued a severe drought up to Sept. 20th, when it rained slowly for a day or so, cooled up, and by the 26th we had a pretty hard frost, bees doing no good. About the 20th to the 26th, wild asters appeared. It is all over this country, a few spots excepted. At this time the bees are almost wild over it, and are filling up their old dry combs full as fast as in the white-clover season, except the very best of the white-clover harvest. If the days were as warm early and late, and as long, as they were in June, I believe the bees would fill their combs as they did in June. The shortness of the days, as well as the coolness of the morning and evening, work against this flower. The bees are doing finely on it, and storing lots of honey, according to the time they get to work on it. There are two kinds here—a pink-white, which grows larger.

DR. W. S. JONES.

Central Station, West Va., Oct. 10, 1887.

THE BUTTER-DISH FEEDER.

I am feeding 50 colonies with your feeder, and prefer it to all others I have tried. I tried butter-boats on top of frames, but they tip over and spill if half full. Brood was so plentiful I could not feed till the 5th.

J. C. STEWART.

Hopkins, Mo., Oct. 13, 1887.

We have no trouble to get the butter-dishes level full by "tilting" them, as described on page 794 of last issue. With the Simplicity feeders it is quite essential that they have a level foundation. The butter-dishes can, by "tilting," be made to set level, even upon uneven surfaces.

APPARENT QUEENLESSNESS IN SEPTEMBER.

The queens you sent me last year were accepted. I have Italianized this year to some extent, but for some reason I have lost four or five queens out of ten colonies. Some, and I think most of them, were young too. I have given my last ones brood, but without success. What is the trouble? Is it ignorant handling, or something in the season? I have not handled them except occasionally, say once a month or so, to see that they were all right. They

would be full of brood at one time, and in a little while no brood at all. Would they be sure to have brood at this season if they had a queen?

Dalton, Pa., Sept. 19, 1887.

C. W. PURDY.

I am rather inclined to think your colonies were not queenless at all. It is not uncommon to find no brood in a colony as early as the middle of September, even when said colony has an old queen. See editorials on "Queenlessness" in October 1st issue, and again in Oct. 15th.

SOME ADVANTAGES OF A HOUSE APIARY.

My house apiary is virtually the same protection as the chaff hive, only a little better. I have it plastered on the sides as well as overhead. I can work with them rainy as well as windy weather, and I have not the cross bees to contend with. There is also no danger of robbing, and the cost is not over fifty cents a colony. GEORGE BRIGGS.

New Sharon, Iowa.

Friend B., I know that all you say is true; but for all that, we have never found anybody yet who liked to work with a house apiary. Our folks all prefer hives outdoors, one in a place, and that one so you can work all around it.

SKUNKS AS A BEE-ENEMY, AND HOW TO GET RID OF THEM.

I am interested in all the honey reports, and particularly from ladies, knowing that what has been done can be done again, under similar circumstances. My bees did well, considering the trouble they had from skunks gobbling them up. I was ignorant of the harm they were doing (as they took none of the little chickens) until I consulted my A B C book, where I learned they were not nosing about the bees for nothing. There were two or three seen at them at one evening, and one several other times, until I could notice quite a difference in size of the swarms. I could learn of no help for it in my bee-papers, and I was more troubled about it than the drought prospects; and as I could not shoot them, I tried setting "Rough on Rats." I stirred it in an egg for them at the hives, two nights; and after the second dose was gone they disappeared, to my great relief. I have tried outdoor work with bees and in the garden, with a nap before dinner, and think there is no medicine better. I wish you could teach us how to make labels for plants, that will stand through a season.

Watertown, O., Sept. 14, 1887. MARIA L. DEMING.

Many thanks for your kind words, my friend; and we are also glad to have you give the additional report in regard to the danger that may be done by skunks. We congratulate you on your success with "Rough on Rats." No one but a woman would have thought of it.—In regard to the labels, if you will turn to p. 989, '86, you will see that I discussed the matter at considerable length. We have never found any thing that would answer on our grounds, from one season to another, so well as common printing-ink, printed on water-proof manila paper. Our seed-bags are all made of this kind of paper; and after you have sown a package of seed, tack the seed-bag on one end of a stick, drive it in the ground at the end of your row, and you will have a good plain label for a year, or two years, if you want. In labeling strawberries, raspberries, and

such things, for the past few years we have been cutting enough of the name, with the point of a knife, into the wooden stake, so as to be sure, when spring came, we could read the marks on the stake, without any possibility of mistake.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 16.—*In what portion of the hands or feet is the pain of the bee-sting the most intense?*

In the gristle of the nose or ear.

W. Z. HUTCHINTON.

Around the eyes; in the nostrils; under the finger-nails.

DADANT & SON.

Under the finger-nails, and on the edges of the nostrils.

PAUL L. VIALON.

The tip end of the nose, or lips, and tips of the fingers.

MRS. L. HARRISON.

In or near the eyes, on the end of the nose, and the ends of fingers.

O. O. POPPLETON.

About the roots of the nails on the hands, and on the tip of the nose on the face.

G. M. DOOLITTLE.

Perhaps the tip of the nose, upper lip, and the inside portions of the hands and fingers.

C. C. MILLER.

Under the end of the finger nails, on the point of the nose, or the outer edge of the upper lip.

R. WILKIN.

Where there are the most nerves, and where the swelling is least. I may mention the end of the nose, the rim of the ear, or ends of the fingers.

JAMES HEDDON.

In the hollow of the hands, and between the fingers near the hands, and on the forehead. It also hurts quite severely on the edge of the ears.

DR. A. B. MASON.

About the head. First, up in the nose, between the nostrils; then on the ears. It swells most when stung on the lip; on the hands, it hurts most between the fingers and under the nails.

E. FRANCE.

We can not say. I think why it often hurts so severely is because the sting enters an arteriole, and so the blood receives much poison at once. This may be on hand, face, or anywhere on the body.

A. J. COOK.

All nerve centers are called specially vulnerable spots, I believe. On the septum of the nose is a pretty good place; but beginners in the art of getting stung should try the easier spots first. Stings between the fingers and on the sides of the finger-joints seem to me to feel a little worse than elsewhere on the hands.

E. E. HASTY.

Well done, friends. These answers from so many different people bring out very important points. I have had a bee-sting under my finger-nail, so painful as to keep me awake nights, when ordinarily I wouldn't

stop at all for any bee-sting. I didn't know that so many others had had a like experience. In the above, five different replies mention finger-nails, therefore we can all set it down that it is not well to give a bee a chance to get his sting under the nail if you can help it. I always feel sorry for anybody who has received a sting on the end of the nose. When a really dignified, sedate individual gets such a sting, it is really painful for me to see him lose his dignity and act like common mortals for a little while.

QUESTION No. 17.—*Do you think reversing has paid you so far in dollars and cents? In other words, have you secured more and better honey, sufficient to cover the first cost of implements necessary for reversing?*

I have never done any reversing. E. FRANCE.

I have never practiced reversing.

O. O. POPPLETON.

Have had no experience with reversing.

MRS. L. HARRISON.

I found no advantages in reversing brood-frames.

PAUL L. VIALLO.

My little experience so far has shown no advantage.

C. C. MILLER.

No; but it has been lots of fun, and I always enjoy that.

DR. A. B. MASON.

Yes. I think the advantages gained more than pay for extra trouble.

A. J. COOK.

We do not reverse. We think there are as many disadvantages as advantages.

DADANT & SON.

No. The best part of such an operation is the getting of the combs built to the bottom-bar of the frame; at least, such is my opinion from the experience I have had along that line.

G. M. DOOLITTLE.

Yes; I think it has paid me. But by using two sets of shallow combs for one brood-nest I find that, after one inverting has completed the combs, I can accomplish all I wish, simply by alternation.

W. Z. HUTCHINSON.

In the reversing business I stood back and let the other fellows try it; consequently I have very little personal experience to relate. My impression is, that the other folks aforesaid have not made it pay.

E. E. HASTY.

Yes; reversing brood-combs, if only once, to get them to completely fill the frames, leaving no lurking or lodging places for bees, pays me for making all kinds of frames reversible. My suspended reversible L. frame has two important advantages, whether ever inverted or not—no trouble from sagging top-bars, and the jog in the frame aids materially in quickly and safely moving it in and out of the hive. The functions of my new divisible brood-chamber hive are such as to completely supersede the inverting system, after the first inversion to completely fill the frames.

JAMES HEDDON.

QUESTION No. 18.—*To get the best results in comb honey, what number of Langstroth frames should be in the brood-chamber when supers are on? how many American or Gallup frames?*

Five Langstroth or American; six Gallup.

W. Z. HUTCHINSON.

Eight Langstroth; I never used the others.

MRS. L. HARRISON.

Five Langstroth, six Gallup, and five American.

G. M. DOOLITTLE.

About seven or eight of the two first-mentioned frames. I have had no practical experience with the other kind.

O. O. POPPLETON.

About five Langstroth are enough, and six or seven Gallup or American. I find this contracting of the brood-chamber all that is claimed for it.

A. J. COOK.

Except during the autumn honey-flow, five or six Langstroth frames, or their equivalent in comb surface. For the fall yield, I should prefer eight.

J. A. GREEN.

I have of late used four or five, but I'd give a good deal to feel more sure of my ground. It is possible that seven are better, and there is still room for experiment.

C. C. MILLER.

I have found that eight frames were the best, especially in the early part of the season; the same number of American frames. I have never used the Gallup.

PAUL L. VIALLO.

I use seven, but am not sure that six would not be better than seven, with the Langstroth frame. About half of my hives take the Gallup frame, and the other half the Langstroth.

E. E. HASTY.

We are not producers of comb honey to any extent; have not had much experience in that line, so I will leave the questions on comb honey blank. I don't like to give an opinion without experience to back it.

E. FRANCE.

Not less than ten L. We succeed best with ten Quinby, old style. This year, again, our ten L. frames need feeding, while the ten-frame Quinby have made enough to winter, owing to their more numerous population during the harvest.

DADANT & SON.

Eight Langstroth, and about the same space when Gallup or American hives are used. With Gallup frames I usually used less space, but they did not winter so well. The space should be such as will admit of storing sufficient for winter besides breeding-room.

GEO. GRIMM.

I have had but little experience in contracting the brood-chamber for comb honey, but have had several years' experience in contracting for extracted honey, and contract more closely for comb than for extracted. The number of frames to be left depends upon the strength of the colony and the size of the hive. I use the eight-frame Langstroth hive, and contract to four frames for surplus.

DR. A. B. MASON.

At that period in the surplus season after which we do not care for any excessive brood-rearing; that is, 30 days after which workers are of no special value for surplus storing that season, I greatly prefer to contract my Langstroth brood-chambers to five combs. We make this contraction with the swarm when we have it, and with the old colony about 20 days after it swarms. I would advise contracting to the same number of American or Gallup frames.

JAMES HEDDON.

If the amount of comb honey to be produced by a strong colony is the object, eight combs filled with brood answer, perhaps, best. But if your queen is

prolific, swarms are liable to issue, when the object is missed. If no swarms issue, the combs are kept filled with eggs, and brood is reared longer in the fall than is desirable, when feeding for winter will be necessary in the majority of cases. My best results, all points considered, were above, 10 frames filled with brood. This causes less liability to swarm. The queen is not restrained in her laying capacity, and lays fewer eggs toward fall. Honey takes gradually the place of the brood; and if winter feeding is necessary it is an exception to the rule. My frames are Langstroths; have had no experience with the American or Gallup.

CHAS. F. MUTH.

Is it not possible, friends, that the yield of honey has something to do with the number of combs to be used in the brood-chamber, while getting surplus honey?



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I, and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

NEATNESS, ORDER, AND DISPATCH, VS. SHIFTLESSNESS, DISORDER, AND PROCRASTINATION.

"MARY, have you had my hammer? Have you, ma?" inquired Sam as he came in breathless haste from the barn.

"Why, no, we haven't had your hammer," said Mary.

"Well, Jimmy and I have been hunting all over that barn, and we can't find it. Somebody has been there, I know, and we can't find any thing this morning. That new steel square that pa bought for me is gone too; but we haven't seen the wrench, with which we change our buzz-saws, for pretty near a week."

"I am sure, my son," said his mother, "we have never meddled with your tools. Perhaps father has had it. There he is now, just going down the lane."

Sam scampered off where his father was.

"Say, pa, have you had my hammer? I can't find it anywhere."

Then Sam went on to tell how, in some mysterious way, his tools disappeared, and one after the other had become missing.

"I have not had your hammer. If I had, I should have returned it before this. There surely must be something the matter," said his father, in all seriousness. "Somebody has been there. Perhaps I can tell the culprit by the tracks that he leaves."

"If it is Jake," said Sam, with elation, "the fellow who stole those watermelons and broke our windmill, we won't let him off quite so easy as we did before."

"I rather suspect," said his father, in a knowing way, "from the evidences that I have seen, that I can call the culprit by name. We'll see." They started toward the barn, and, on arriving there, they found Jimmy pulling things over right and left, in hopes of finding one or more of the missing tools.

"There's no use hunting," said Jimmy; "you might hunt for a dog's age, and you couldn't find one of 'em."

"I guess not," said Sam, confidently. "Pa says he thinks he knows who has been here;" and Sam began to hop up and down.

"What!" said Jimmy; "if it was Jake I'll pummel the life out of him."

"Well, boys, would you like to know his name? He has been all over the country, and he has made the world a vast amount of trouble. I am afraid he has caused little boys to say bad words that they ought not to have said, sometimes. His name is, well—Shiftlessness. Some folks call him Disorder; but call him what you like, we want to take measures to get him out of the way as speedily as possible. He it is who has laid away your tools."

"Shiftlessness!" uttered Jimmy. "Does he have two legs, two eyes, and two arms, and walk around like we do?"

"I rather suspect he does," said Mr. Green.

"About what year was he born?" inquired Sam, with a sly twinkle in his eye.

"Very soon after Adam was expelled from the garden of Eden," replied Mr. Green. "Now, boys," he continued, "I have given you a little of his personal history. I shall have occasion to refer to a few of his characteristics at another time; but the first thing that I want you to do is to slick up your work-shop. Here you have got a pile of rubbish, frame-stuff, pieces of hives, sawdust, and a general litter all mixed up in a heap. It is in the way so that you can't work to advantage. Your pile of boards is also blocking the passage. See, you can't get to and from your saw-table without stepping over those boards every time. What tools I can see are lying about the floor, presumably where they were last used. The side-boards and end-boards for the hives which you sawed out are piled right in the alleyway. Just back of them is the frame-stuff. Every time you try to do any work you are obliged to make an uncommonly big jump, or else smash and scatter every thing. Now, who did all this? It was not you, boys, was it? It was Shiftlessness, the individual who was born some six thousand

years ago. He it is who delights to visit boys' work-shops and some farmers' barns and barnyards. Now, boys, I haven't time at present to talk longer. I propose that you and Jake and any others of your friends you may choose to invite, come over to my house this evening and I will talk to you about the general characteristics of Old Shiftlessness. In the meantime I want you to pile all the boards of a kind by themselves, the frame-stuff by itself, and the kindling-wood in baskets by itself, after which sweep up the shavings and sawdust. In order to do a good job, your mother ought to boss the job for you; and if Mr. Shiftlessness doesn't return the missing tools right speedily, then I shall miss my guess." So saying he left the boys.

After he left he reported to his wife the condition in which he found the barn-loft, and requested her to give general instructions. Upon being summoned by the boys, Mrs. Green hastily put on her bonnet and started for the barn. When she arrived at the scene of operations she commenced in this wise: "Well, boys, I speak from experience when I tell you that you want to have those things which you use the most the nearest to your work. I always try to avoid making useless steps for an article in the kitchen, and so I arrange my cooking-implements as near to the place where I want to use them as I can. The same is true in regard to your lumber and tools. You must not have them in your way, and they must be arranged every thing in its place. First of all, before you go any further you want to discuss between you what tools you use most. They should be placed in that part of the shop where they will be the handiest. Mr. Green instructed me to tell you that your lumber should be piled so that it would not have to be handled three or four times before actual work was put upon it."

The kindling-wood was to be piled in the wood-shed, the shavings in a barrel, and the sawdust to be used for making paths. Mrs. G. then left them. In our next issue we shall see how they succeeded.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

A PROBLEM FOR THE LITTLE FOLKS.

Well, young friends, I haven't called upon you for some time to answer a problem, have I? Here is a problem, concerning which if we could get the most of you to agree on uniformly we should consider the results as thus gathered quite a little addition to our fund of knowledge. The problem is this: If bees be taken out of the hive, dropped into the snow, and left there, how long can they remain in that chilled condition and yet be revived on being placed in a warm room? What I want you to do is this: As soon as we have a good fall of snow, which probably will not be many days hence, you are to get a couple of dozen

of strong, healthy bees,* and drop them into the snow, when they will become chilled and apparently dead. At the same time that you drop the bees into the snow, you are to get an equal number, place them in a queen-cage, and leave them outdoors where they will be exposed to a freezing temperature. Now, every twelve hours from the time that you begin your experiments I want you to take two bees from the snow and two bees from the queen-cage, place the four in a warm room, and allow them to revive if they will. The point is, I want you to see just how long bees can remain in a chilled condition and yet be brought to life, so to speak. Mr. Doolittle has made some experiments; and, if I am correct, he has stated that the extreme limit which bees could be brought to life again from their chilled state was three days. Very likely he is correct, but I am sure friend Doolittle and others would like to see what a dozen or more little folks could do in proving or disproving his assertion in *different localities*. It is possible, that under certain circumstances you could make the bees revive after being chilled for four days continuously.

While you are making these experiments, boys and girls, don't forget to have a notebook, or something in which you can write down what you see at the end of each twelve hours when you warm up the bees. Ask your mamma or your papa to help you in doing the work. Now, every juvenile who will make these experiments carefully, and send in a careful report, we will give, in addition to the usual prize offered at the head of this department your choice of the following: A panel chromo, size 8½ x 21—a beauty, and an ornament to any home.

New Version of the New Testament, paper bound, large print.

Papeterie, a pretty box of stationery containing 24 sheets of note paper and 24 envelopes. This is a beautiful present for a girl.

Knife, two-bladed, bone-handled, blades good steel; a nice present for a boy.

A horse-shoe magnet. Every boy knows what they are for.

The above prizes will not be confined to those who write only upon the subject of chilled bees. Any juvenile who can furnish us something for this department, on other subjects which rather surpass in interest and value the average run of letters which we get, we will send him one of the premiums; but in any case, little folks, please bear in mind that we are to judge whether your letter deserves this additional premium.

WILLIAM'S LETTER.

My brother has now 12 bee-hives. He has an tractor. The bees are getting more honey now than before. Goldenrod is in bloom, but the bees are not getting any honey from it yet. They are getting honey from ice-plant, or silver-weed.

Belton, Tex., Oct. 8, 1887.

WM. MOGAN.

* I omitted to say right here that the bees should be filled with honey before causing them to become chilled.

SOMETHING FROM WASHINGTON TERRITORY.

There are a great many wild flowers out here, which are full of honey. If we had some bees we could have honey to sell, and all we could eat. Teanaway City is growing fast. We live one mile from town.

SETH S. SEATON.

Teanaway City, W. T.

ASHES IN FRONT OF THE ENTRANCE.

Pa takes GLEANINGS, and he says he would not do without it. He throws ashes on the snow in front of the hive, to keep the bees from falling in the snow, and freezing; he thinks it does good, and wants to know your opinion about it.

Yocumtown, Pa.

HATTIE FETROW.

Very likely the ashes would answer a good purpose, if the bees fly while the snow is on the ground; but we have never found it necessary to use any thing.

CORA'S LETTER.

Papa had 9 stands, and increased to 28 by the information obtained in your books. Most of our bees swarmed, and papa hived them. They went to work nicely. I am not afraid of bees. I go all around the hives. I love to read little folks' letters. Papa is going to send for some carp. We have some nice places for ponds.

CORA THOMPSON.

Bristol, N. C.

"A BEE-PATCH."

Frank, a small boy, saw some bees on some goldenrod flowers, and went home and said to his mother, "You can't guess what I have found." "No," said his mother. "I found a bee-patch."

Nolandville, Tex.

CHARLES NORMAND.

I suppose the little boy meant that he saw a field literally covered with humming bees. It is a pleasant sight, isn't it, to see the bees thus busily engaged? How happy they are! Bees never get into mischief when they have something to do in the fields. You know, "Satan finds some mischief still for idle hands to do," and little bees are no exception when they are idle.

MELVIN'S BROTHER'S 300 COLONIES.

I go to school every day, and read in the third book. My studies are arithmetic, grammar, writing, and drawing. I have two brothers, bee-keepers. One brother commenced with 3 colonies last year, and now has 28. The other brother has 300. I help to attend to them in the summer, and watch them when they swarm. I like honey very much, and sometimes I get a sting.

MELVIN L. MOORE.

Pelham Union, Ont., Can., Oct. 23, 1887.

THE BEE.

Bees live between 6 and 8 weeks in the honey season. The drone lives about as long as the bee, but sometimes the bees kill them before they get very old. The queen sometimes gets to be very old. She doesn't do any outdoor work. She generally lives through the second or third season. My brother has four stands of bees. The bee is a very particular little insect. If the hive doesn't suit them they leave it.

C. J. Fox, age 12.

Brookville, O.

NELLIE'S REPORT.

My papa has 30 stands. He gave me one hive, and I got \$2.50 worth of honey. We sell the extracted at 10 cts. a pound. We have one of your extractors, and like it real well. Papa took his wax-extractor to the fair and got the first premium last week.

Our bees did the best of any one's around here. We got over 1000 lbs. of honey. We take GLEANINGS. It is papa's favorite book.

NELLIE DICKMAN, age 14.

Defiance, O., Sept. 7, 1887.

RECIPES FOR HONEY-CAKES.

I send you two good honey-cake recipes.

Poor Man's Cake.—One egg, broken into a cup, and beaten a little; fill up the cup with sweet milk; take one cup of honey, half a cup of butter, one teaspoonful cream tartar; half a teaspoonful of soda. This is a good cheap cake.

Sponge Cake.—One cup of honey, three eggs beaten to froth, half a cup of sweet milk, two tablespoonfuls of melted butter, one teaspoonful of cream tartar, half a teaspoonful of soda; flavor to taste. Add flour enough to make a light sponge. This recipe makes a nice jelly or coconut cake.

Edgerton, Kansas.

WILBUR ENDLY.

WINTERING BEES UPSTAIRS.

My pa caught a swarm of bees, and made a hive and put them in it. He had never tried to keep bees before, and so he thought he would put them upstairs, and they all died. Then he bought another swarm, and now he has nine. He had a swarm that was packed, and he did not unpack them soon enough. The comb melted and fell, and it smothered all of the bees. My pa takes GLEANINGS. I like to read the juvenile letters.

JESSIE BRYNER.

Bloomfield, Pa.

Friend Jessie, I am glad you have told us of your papa's failure, for it gives me an opportunity to say that I hardly ever knew of bees wintering successfully in an upper room. The changes of temperature are too great. In the coldest weather it will be too cold, and in the warmest weather it will be too hot, in spite of any thing we can do. I do not quite understand why the combs should melt and fall down on account of the packing. Our chaff hives are packed both winter and summer, and we never knew of our combs melting down, unless the bees were fastened in the hives.

HOW TO PICK UP BEES.

We have a few stands of bees. I said I was not afraid of the bees, so one day I picked one up on my finger, and it stung me. One day my ma was hiving the bees, and they stung her all over the head.

KATE NEFF, age 8.

Cleve, Polk Co., Iowa.

Friend Katie, you didn't pick up the bee right. You remember, perhaps, about a year ago I gave some instructions how to pick up bees. You were first to practice on drones, as they crawl over the comb. With your thumb and forefinger, grasp the wings and you can pick up the drones without a bit of trouble. Keep on practicing with drones until you have learned the knack of picking them up without hurting them. Having done this you can then with more security pick up the worker-bee. You must be sure to grasp hold of both wings, otherwise he will turn over and make you feel inclined to let him go. It is one of the little fine arts of bee-keeping to fill a queen-cage with a dozen bees or more, in a half-minute. It can be done, and has been done, by those who know how.

OUR HOMES.

Him that cometh to me, I will in nowise cast out.—
JOHN 6:37.

MR. ROOT:—You have asked the question, "What other one is there who wants to commence right *here and now*, in laying up treasures in heaven?" I would say, here is one who has long desired to be a Christian; and it seems to me that I have done every thing I could, and yet it has done no good. What am I to do? Reading your little sermons, and Elsie Myrtle's and Frank C.'s letters, has influenced me to do this, and are partly the cause of my interest in my eternal welfare. Sometimes I have almost imagined I have experienced some kind of a change, but think I must have been mistaken. Now, Uncle Amos, I want you to pray for me, to ask God to forgive me, for Jesus Christ's sake; or if I am a Christian, to enable me to see my way clear. I would give millions of worlds, were I able to say from my heart, "I know I am one of God's children," and how gladly would I serve him! I want *all* the Christians who read GLEANINGS to pray for me too. God bless you, and the grand work you are doing for him.

Your little friend, S. D.

Texas, Oct. 24, 1887.

May God bless you, my little friend; and may he give Uncle Amos wisdom in leading you and other lambs of the fold in safe pastures, and by pure, wholesome waters. My dear friend, you are wasting time in longing for something, and waiting for something that God has not, at least as yet, seen fit to give you. May be I shall be cutting on to some of the doctrinal points that I know but little about, in my answer; but I feel sure that I can advise you safely. In becoming a Christian, there should surely be a change of heart; and many times, where the penitent sinner has been guilty of great sins, or even crimes, the change of heart is so wonderful that we may truly say, "This individual has been born again." And such converts often startle communities by exhibitions of emotion and joy and peace, which we do not find at all where some one who has always lived a pretty good life turns to Christ. I should infer from your letter, friend S., that no very great change is needed in your life, to make it a consistent Christian life. Remember, I don't know you, and I am guessing somewhat in the dark. What you need is faith in God—implicit trust in him and his promises. In our text we are told, "Him that cometh to me, I will in nowise cast out." Now, dear young friend S., you have come to Christ; and if his promise be true, you *are* one of his children; and all that remains for you is to go right to work serving him, without waiting any longer. Do it out of love to him, and not with a hope of reward. If you do this, I think this peace and joy which you have been craving will probably come in his own good time; but remember, S., that we are unlike in disposition and experience. When I first turned to Christ it was a big turning about, I tell you. I had been ridiculing the Bible and prayer-meetings, and had been persuading people not to go—yes, even the boys and girls in my company. I told them it was

wasting time. More than that, I tried to prejudice people against the meetings, and against God's chosen servants. Now, when I turned right squarely round about, and even went to the prayer-meetings, and publicly recalled what I had said, and promised to be a faithful follower and servant of Christ Jesus, so long as he gave me life, I could not help feeling differently. I was a new man, as it were, and a very much better man, my dear young friend. Under these circumstances it was quite natural that I should have a bright and joyous experience. It should be remarked, too, that I am naturally imaginative and enthusiastic. I get happy over bees and gardens and poultry, and you must remember, too, that I get blue and low-spirited at times, also. Now, when one has long been evading some duty that stood before him, he almost always feels a thrill of happiness when he takes up this duty. This is a law of the human mind; yet these feelings, of themselves, do not amount to much, after all. Some new converts who have these bright and joyous experiences, backslide and give up their religion in just a little while. Feeling is a good thing, but there must be a substantial purpose back of it. I remember one young convert who said that he could not say that he had experienced a change of heart, but he had certainly experienced a change of purpose. Now, a change of purpose is what God wants. He wants you to stop doing every thing you know is wrong, and commence doing every thing you think you ought to do. In other words, do your duty, whether you feel like it or not. It is like getting up in the morning. Your feelings are not to be consulted at all. Your duty is the thing to consult and consider. Duty says, "Get up and attend to your work in proper season." Feelings would say, "It is too cold, and I am too sleepy," etc.

Now, I am glad to be able to tell you of a Christian experience that was so entirely unlike mine, that the person could hardly believe she was accepted of God; and this one I am going to tell you about is no other than my dear wife. Before I became a Christian she was not a member of any church. She was in the habit of reading her Bible, and of going to her heavenly Father in prayer whenever she was in trouble. She prayed for her children, and sent them to Sunday-school, and tried to do her duty as a Christian; but she had never thought much about church membership, and perhaps had an idea something like yours, dear little friend, that when God should give her a bright and vivid experience she would know then that she was called of him, and would be ready to do whatever he asked her to do. Well, when I, all of a sudden, as it seemed, took hold of the Bible and united myself with Christian workers, she was, like everybody else, surprised and astonished; and she, too, like many others, felt sorrowful because she could not have an experience like my own. As a matter of course, I urged her to join the church with me. She said at first she did not dare to. She said she had no *feeling* in regard to the matter. Our pastor tried to explain to her that it made no

difference; but her early training and teaching had been so much to the contrary that she felt greatly troubled and worried about calling herself a Christian before she had had any evidence that she was called to be one of Christ's chosen ones, or one of his "anointed," as it is sometimes termed. I suggested to her that she would receive "the blessing," as we often call it, by going forward and taking up Christian duties. Finally, in response to my urging and that of our pastor, as well as that of the pastors of the four other churches (for we had a union revival that winter), she united with the church. You may ask, did this happy experience—this great change that is often termed the "new birth"—ever come to her at all? I am obliged to say, perhaps with some qualification, it has not come to this day; it never came at all; she never felt any sort of change; and at times for a good many years she was worried and troubled for fear she had done a wrong thing in uniting with the church as she had. In fact, I was for a time afraid that she would never feel satisfied with her religious experience; but I am glad to say now that her faith in God and his promises is perhaps even more firmly rooted and grounded than is my own. Dear friends, many of you may think there is no sort of danger that I should ever change in my love toward Christ; but could you know my wife as I know her, I think you would say that her Christian character is *more* firmly builded on the rock of Christ Jesus than is my own. The rains may descend and the floods come, and the winds may blow, and in a way to intimidate and demoralize even the veterans in Christ's service; but Mrs. Root's faith will never waver. Very likely I may, when great trial comes, be demoralized and frightened, and perhaps, for the time being, inclined to doubt. My experience may be like Christian's, in the Pilgrim's Progress; but my wife's experience will be more like that of his companion Hopeful. Do you ask where or how she got this firm faith? It has been by doing duty in all these long years, and paying no attention to feeling. Two of our children are married, and have homes of their own; three others are growing up, and their minds are being molded and formed by a mother's love. Our children have been wayward and contrary—sometimes stubborn—yes, fearfully stubborn, as their father was; but my wife has gained faith in God by praying and working with these children. Her reward has never come by jumps and starts. It has come in the even tenor of her life. She has tested the promises so many times during these years that are past, that they have got to be a part of her very nature; and instead of the bright experience that I and some others have enjoyed at times, hers has been a calm and peaceful rest and trust in the Father's love. No doubt there is wisdom in these different experiences. My enthusiasm has been the means, perhaps, of turning a good many toward Christ and his kingdom. Very likely my wife's clear even way has done fully as much among her circle of friends and acquaintances.

I am glad to know, dear friend S., that you are stirred, and that your faith was brightened by those letters from our brothers in the penitentiary; and I would suggest that you will probably enjoy doing mission work of this kind. Go with your father or mother or brother, or with some Christian brother or sister, to your nearest jail, and interest yourself in the inmates there. Tell them of Christ, and of his love for sinners. Never mind yourself; accept with thankfulness what God has given you in the way of religious experience, and don't trouble yourself or worry about the other part. In that beautiful little book called "The Christian's Secret of a Happy Life," the author says, "In becoming a happy Christian there is a work for you to do, and a work for God to do." Then she says, "Now, you must take it for granted that God will always do his part; hence all that remains for you to do is to trust him and be ready to do *your* part." You are not mistaken, my little friend, if you really want to be a Christian. When you feel disappointed and discouraged in the matter, ask yourself, "Am I really hungering and thirsting after righteousness?" If so, then you are all right, and all you have to do is to wait for the promises. God will send them in his own good time.

Now, in closing, little unknown friend, I want to take up another side of the question. May be the reason why you have not a more vivid consciousness of being one of God's children is because you are not living up to his commands. I suppose you are, of course, reading your Bible; I presume you attend Sunday-school regularly; very likely you are a member of this new society that is doing so much good, called the "Society of Christian Endeavor." If so, then you certainly have plenty to do in Christ's service. I should think, from your childlike letter, that you are honest and sincere, and that your daily life is in accordance with this letter. If you want to be one of God's chosen ones, you must be sure you cherish no unkindness toward any one. I suppose, dear little friend, you are ready to shake hands pleasantly and good-naturedly with every man, woman, or child on the face of the earth; and if you have any enemies, I presume you are ready to shake hands and make up—always ready. No doubt there are brothers and sisters, and may be other people, who delight in teasing and bothering you. I suppose you are doing good to each one of them; that, in fact, you are trying to love your enemies. I suppose, too, you are helping your mother, studying her wants and wishes. I presume you take pains to enter into the interests and feelings of the younger ones of your family. I presume you are always pleasant and good-natured; that you are patient under suffering; that you are not always trying to please yourself. You remember the dear Savior pleased not himself; and I hope, dear little friend, you are always pure in heart. I can remember well, that, when quite a child, impure thoughts were sometimes put into my little head by getting among bad companions. If you want to be God's child, remember what he says: "Blessed are the pure in heart, for

they shall see God." Now, perhaps many will say the above is too strict and too hard in its requirements, for any one. May be some of you say, "Why, Mr. Root, you don't mean to say that a body must be a veritable angel here on earth, do you?" No, dear friends, I do not mean to say that; but I do mean to say that the change of heart that our little friend has longed for can come only in answer to being faithful in all these things. If you don't want darkness and doubts to visit you, beware how you indulge in any of those temptations that I have mentioned. My experience is, that there is no friend like a mother to help and to guide, especially when temptations meet you that you wouldn't care to talk about to anybody else except your mother. Make your mother your confidant in every thing that troubles you, and you can not go far astray. When you are tempted to hide and conceal certain things from your mother, then beware. This is where the first wrong step starts out, many times.

Sometimes when these things seem to be so very strict, or the straight and narrow path seems so exceedingly straight and narrow, we are tempted to indulge a little in things that we know good church-members ought not to indulge in; in other words, you decide you don't believe you are ready to pay the price. Then, my friend, you must pay the penalty. The wages of sin is death; and if you sin just a little, you may have a little taste of this eternal death that is the result of persistence in sin.

You have not told me how old you are, my child, and I can only guess at it from your letter. You have not told me, either, whether you are a member of any church, or have united with any body of Christian people. Now, my experience is that a young Christian must soon come to a standstill unless he comes out openly and confesses Christ. You know Jesus has said, "He that is ashamed of me and of my words, in this adulterous and sinful generation, of him also shall the son of man be ashamed, when he cometh in the glory of his Father with the holy angels." Don't let any false modesty hinder you from standing up boldly and honestly, and declaring your purpose to serve Christ, and to work with Christian people. In the postscript to the letter I have given, you desire me to use only your initials. This may be very well for a young person when coming out in print; but still I think, dear friend, it is generally best to stand up boldly and fearlessly, and hesitate not to state before the world just where we stand.

Some may ridicule such a course because you are young. But, let them ridicule, friend S. Suppose some of your school-mates should say, "S. is afraid to tell a lie;" or, "S. dare not say bad words;" or suppose somebody should taunt you with being pure in heart, wouldn't you rather rejoice at such words? Well, being a Christian simply embodies all of these; and I think the very safest and best place for every child who loves the Lord is within the folds of the church; but if you try to keep it to yourself, Satan will continually try to tempt you to

turn back and give it up. In fact, he has been tempting you that way already. Now, there is no remedy for these temptations, that I know of, except publicly placing yourself on the Lord's side. Tell Satan and your fellow-men that *the act is done*—that, so far as you are concerned, you belong to Christ Jesus, and there is no use in discussing the matter any further. This act alone, many times, brings that change which you seem to long for. If you love God, you must love your fellow-Christians. In regard to this matter, John uses this strong language in his First Epistle: "If a man say, I love God, and hateth his brother, he is a liar." Perhaps the greatest trial of my life has been to have this true Christian love for all humanity—friends and enemies alike. I have sometimes thought, that when Satan had given up on every other point, almost, in my case, he still hung around, whispering evil insinuations and uncharitable suggestions in regard to the people I meet and do business with day by day. Repeat often to yourself the little text, "Judge not." Let God be the judge, and let him decide who is pure in heart and who is not.

One more word, my dear child: If your life is not as good and pure as I have mapped out in the above, remember that Christ Jesus came on earth to save sinners, and that our text is broad in its application. It is written especially for sinners. Even if you have sinned and strayed away, and backslidden a great many times, remember that God never gets tired of hearing you ask for forgiveness. "Him that cometh to me, I will in nowise cast out;" and, my dear young friend, it may be you will have to ask forgiveness over and over. If it were not so, you would be better than most of the old Christians. God is ever ready to forgive, when we are truly *sorry*. Keep close to the Savior; don't let a day pass without calling to him. Make the little prayer I have told you about, yours—"Lord, help!" No one can monopolize this little prayer. If all the world were uttering it mentally, at one and the same time, I should be gladder and gladder to know it; and Jesus the Savior would be gladder too. Breathe the prayer, whether you feel like it or not, when you know you are getting away into darkness and sin. If you seem to be *all* bad, as a great many of us do at times, don't be discouraged and cast down. At such times you can grasp hold of that prayer of David's—"Create in me a clean heart, O God, and renew a right spirit within me." This very prayer itself seems to indicate that David knew what it was to feel that he was getting to be *all* bad, and therefore it may encourage us. Now, when you have put these things in practice, and have found the peace that God usually sends sooner or later, I shall be glad to hear from you again, little friend, that your experience may be an encouragement to others; and I almost know already that this frank, honest, childish letter will be the means of raising others. One of the hopeful signs of the present age is, that children and young people are taking such an active part in Christ's work. Remember who it was that said, "Suffer the little children to

come unto me, and forbid them not, for of such is the kingdom of heaven."

Now, as we open this Home Paper with a letter from a child, here is another to close with, from one who has been forty-two years serving the Lord:

Dear Brother:—I just want to talk a little this morning, and tell you a part of my experience. I have been in the service of the Master forty-two years, and oh how it gladdens my heart to hear those young people speak out in his praise! Do you know I had been wishing for a long time that you would ask the bee-friends to give their religious experience for awhile? I was very agreeably surprised when I turned to Our Homes in the issue for Oct. 15.

N. A. E. ELLIS.

Astoria, Mo.

JAPANESE BUCKWHEAT.

IS IT GOING TO BE THE BUCKWHEAT FOR BEE-KEEPERS?

AT present we have received reports from only eight different individuals. Now, we sold about forty bushels of this buckwheat for a test, and most of it in small packages of from two ounces to a pound; yet we have only eight reports so far; and it is a little singular that these eight reports are all *extra good*. Now look here, friends, I wonder if it is going to be true with this new buckwheat as it was said of bee-keepers in regard to reporting honey-yields, that nobody reports unless he has made a big thing. Please let us hear from those who have made a failure of it. I have given you our report, and I frankly stated that the yield of grain was not near what I was led to expect. Now let us have reports of all kinds—good, bad, and indifferent. Don't be backward in saying that it didn't do half as well as our old kinds, if such is the truth. Below are the reports alluded to above:

JAPANESE BUCKWHEAT YIELDED TWICE AS MUCH AS THE COMMON KINDS.

Our yield of Japanese buckwheat was satisfactory, taking the dry season into consideration. From one peck of seed, purchased from you, we have 4 bushels, 3 pecks—twofold more than the common black buckwheat yielded, both being treated precisely alike. Mr. Leikart, a neighbor, at our solicitation, sowed a bushel which he bought of Peter Henderson; and although the cows broke in and destroyed some, he has 27 bushels. This yield is also double what the silverhull yielded with same culture.

OUR REPORT.

Our honey report for this year seems meager compared with what we expected in the spring. Never were our bees in better condition, and never were we better prepared to receive a honey-flow—which did not come. A bright new wheelbarrow was in readiness from the Home of the Honey-Bees, on which to wheel the honey in screen-doors and windows into the honey-room, etc. We wintered 53 colonies, sold 5, and commenced the honey-season with 48. We increased them by natural swarming to 58, and have taken about 1700 lbs. of extracted honey and 200 lbs. of comb. The bees have an abundance of stores for winter, and we think the honey we extracted this fall the finest

fall honey we have ever taken. It is dark, but has only a slight flavor of buckwheat. In the light of our experience this year, Japanese buckwheat is not so good for honey as the other kinds. It did not stay in bloom so long—matured more quickly.

MRS. BELL L. DUNCAN.

Black Lick, Pa., Nov. 8, 1887.

A YIELD OF 12½ BUSHELS FROM 1 PECK, UNDER ADVERSE CONDITIONS.

I sowed a peck of the new Japanese buckwheat, July 5, on a trifle over half an acre of ground. It came up well, and there were certainly plants enough properly distributed for an acre. It grew and blossomed well, but the excessive wet weather caused a lot of weeds to grow and somewhat smother a part of it. Unfavorable weather, and a frost at the close of the season, undoubtedly prevented the growth of so large a crop as might have been expected had it been sown one week earlier, as I intended. The weather was not quite dry enough when it was thrashed, and some (perhaps a bushel or two) was left in the straw. As it was, I secured just 600 lbs., or 12½ bushels of 48 lbs., after running twice through a good fanning-mill. I feel well pleased with it. The bees worked on it some, but stored no surplus. They also had other fields of the old kind to forage on. We do not get buckwheat honey here every year, and it is nothing against it that it had no honey this year. In 1886 we were favored with a large yield from buckwheat, having several hundred pounds in sections, and of extracted also. It sold slowly at about two-thirds the price of clover and basswood honey.

Walpole, N. H., Nov. 7, 1887.

J. L. HUBBARD.

ONE AND ONE-FOURTH BUSHELS FROM ONE POUND OF SEED.

Mr. Root:—If you remember, I told you, when I was at your place, about getting a pound of Japanese buckwheat of you last spring. You asked me how much I raised from it. I could not tell you then, but I can now. I weighed it, sack and all, and it weighed 65 lbs. The sack will probably weigh 1½ lbs., and I think there was more than 1½ lbs. shelled off, as I noticed it was pretty thick on the ground, so I got 1¼ bushels by weight from one pound of seed. I told you we had an acre of buckwheat besides the above. We got 19 bushels from that. Don't you think both kinds did very well for a dry summer? It was a sight to see the bees working on the buckwheat. I never saw them work on it as they did this year. We cut a little over seven acres of red clover for seed; about one-third of it stood very thin. We got 10½ bushels of seed by weight from that. Our bees worked a great deal on that also; and also on the first crop of clover too. Don't you think bees working on such crops will cause them to fill better than they otherwise would?

Bristolville, Trumbull Co., O.

J. S. BARB.

FOUR OUNCES YIELDED 62 LBS., AND ONE STALK GAVE 1153 KERNELS.

I tried the Japanese buckwheat this season on a rather small scale. Last spring my son purchased a 4-oz. packet of you. I sowed it June 25, on about 5 rods of ground, which was very thin. It came up and grew very rank, and soon covered the ground. The fore part of August we had a heavy rain that washed it quite badly. We had a severe frost before it was all matured. I cut it about the first of September. It stood out some three weeks, on account of wet weather, before I could thrash it, and

quite a little was destroyed by mice and birds. I thrashed it, and cleaned up 62 lbs. of nice buckwheat. I counted 1153 kernels on one stalk. Buckwheat this season is a very light crop here, not yielding more than 6 to 10 bushels per acre. I think I shall try the Japanese next season, on a larger scale. O. N. GUERNSEY.

Great Bend, Pa., Nov. 5, 1887.

A YIELD OF 160 TO 1.

Last spring I got of you 2 oz. of the Japanese buckwheat, from which I raised 20 lbs., which is a yield of 160 to one. It was sown in drills, and much of it was too thick, and it suffered from dry weather, or it would have given a still better result. Next season I intend to sow an acre or more; and if it equals in yield what this did I shall be well satisfied.

A. A. FRADENBURG.

Port Washington, Ohio, Oct. 29, 1887.

A YIELD OF ONE BUSHEL AND TWO QUARTS FROM ONLY HALF A POUND OF SEED.

You ask for a report from those getting the Japanese buckwheat of you. Well, I bought 1 lb. of the seed; and for fear it might fail I sowed just one-half of it. It grew well, but of course it was very dry here as with you. I harvested it, and thrashed one bushel and two quarts, but not as plump as the seed I got of you. I intend trying it again next year. H. J. BEAN.

Black Creek, Ont., Can., Nov. 8, 1887.

SIX BUSHELS FROM ONE PECK; THE GRAIN LARGER THAN SILVERHULL.

The peck of Japanese buckwheat that I received from you I sowed about the middle of June. I harvested from the peck of seed six bushels, which I admired very much while in bloom; also when I came to harvest it, as the grain was so much larger than the silverhull. I sowed the silverhull ten days later, alongside the Japanese, which gave about the same yield; but as the drought hurt all the early sown buckwheat much more than the later, I am quite well pleased with the result.

L. D. FREEMAN.

Venango, Crawford Co., Pa., Nov. 10, 1887.

I thrashed 34 bushels of Japanese buckwheat from one peck of seed purchased of you.

Elroy, Wis.

E. E. BABCOCK.

THE CHENANGO-VALLEY APIARY.

A REPORT FROM A LADY BEE-KEEPER; HOW, IN SPITE OF FAILURE, SHE SUCCEEDED WITH EIGHTY COLONIES.

MY report may not be very encouraging to beginners. Last spring I met with severe loss in the number of colonies, far exceeding any previous year of the nine I have been in the business, and just as I thought I had mastered the wintering problem. I attribute the loss mainly to three causes—severity of the winter, the extra long confinement (very nearly six months), and working too closely for queens during the late summer. Last fall I put in winter-keeping, eighty colonies in good chaff hives, with abundance of stores. Those that I doubted, I fed with thick syrup made of granulated sugar, until I used two barrels. Well, I lost as many fed with sugar as with honey.

Last April found me a little blue. Fortunately,

among those left were some of my best Italian queens. I bought ten colonies, which cost quite a sum, as bees were scarce. With all my combs left with more or less honey in, I soon built up to sixty colonies from which I reared queens enough to fill my orders. I am glad to say I have had good success, and, as far as reported to me, I have given good satisfaction, contrary to the prediction of some friends who said that, because I was a woman, I would not get any orders.

Queen-rearing is a pleasant occupation, although requiring the strictest attention. The necessary knowledge is more fully gained by experience; yet we all know how essential the leading bee-publications are to the apiarist, and how much more they are worth than their price.

The honey yield has been light in this section this season. The apiary I work for honey, about nine miles distant, in a basswood region, gave about 50 lbs. per colony. I think all my bee-keeping friends at the North will join with me in wishing for a more moderate winter.

MRS. OLIVER COLE.

Sherburne, N. Y.

MEDICINAL HONEY.

A REMARKABLE KIND OF HONEY, BUT TOO "FISHY" FOR BEE-KEEPERS TO BELIEVE.

ONE of our subscribers sends us the following, which is marked as having been taken from the *Medical Journal*, of New York, from which paper it was copied by the *Tribune*, of the same city:

About three years ago a distinguished French naturalist, M. Guilmet, who was traveling in Tasmania, came suddenly upon a grove of gigantic eucalyptus-trees, from 280 to 390 feet high, and with a trunk so large at the base that it took forty of his Kanakas, joining hands, to reach around one of them. High in those lofty trees he discovered what he at first took to be enormous galls, but which he soon ascertained to be the dwelling-places of swarms of small, black, wild bees of a variety before unknown to him. Dr. Thomas Caraman proposes for this bee the provisional name of *Apis nigra mellifica*. Besides being black and smaller than the ordinary honey-bee, this wild bee has its languet rather more developed than that of the domestic bee. M. Guilmet attempted unsuccessfully to domesticate it in Tasmania. He caused some of these immense trees to be felled, and secured the honey. The largest individual store of honey weighed as much as 11,000 pounds avordupois.

The honey is described as a thick, homogeneous, somewhat transparent syrupy liquid of a deep orange color; having an odor suggestive at once of its containing eucalyptus principles. As the result of experiments on himself and one of his friends, Dr. Thomas Caraman states that, on taking a tablespoonful of the honey in a little tepid water or milk, after a few moments one perceives a gentle agreeable warmth take possession of his whole person. At the end of half an hour, the elimination of the active principles by the air-passages having begun, the voice becomes clearer and the breath perfumed; the lungs feel more elastic, more supple. Having continued the use of the honey for a week, four tablespoonfuls daily, the author, who speaks of himself as respectably fleshy, found that he could go up two pairs of stairs, two steps at a time, without stopping to take breath or feeling at all blown.

The fore part of the above item seems to have the impress of truth upon it—at least, for any thing we know; but the latter part, in regard to its medical qualities, is, in my opinion, entirely out of the way. It looks exceedingly like a puff for a patent medicine, and we should not be surprised if Mr.

Thomas Caraman would offer some of this wonderful honey for sale, sooner or later. Now, is there any one of our readers who is prepared to tell us whether such trees are to be found in Tasmania? And has there ever been such an amount as 11,000 lbs. of honey taken from one tree? Until some one can corroborate this statement, I think we can put it down as a humbug, the whole of it.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE CONDITION OF OUR BEES FOR THE COMING WINTER.

WE have now packed in chaff, after the manner we have formerly described, 230 colonies, 176 of which number are at the home apiary, and the rest, 54, are in the swamp. In accordance with our usual custom we pack on chaff cushions the first of October—the loose chaff a month later. Why do we not put the latter around and above the brood-nest at the same time the cushions are placed on the hives? For two reasons we prefer to make the postponement. First, some colonies, in consequence of the shrinkage of the stores, resulting from evaporation and consumption, require a little more feeding. We find that we can not calculate exactly, before feeding, the amount this or that colony will need. Taking advantage of a few warm spells which are sure to take place during the last days of October, in our locality, after we have fed the estimated amount for each hive, we critically examine every colony to see if it still possesses a queen, and also whether it has its combs well filled with sealed stores. If any colony is lacking in either requisite, they are supplied. Second, it is much easier to adjust the Hill devices, slip in the division-boards, and pack in the loose chaff, after the bees have begun to contract somewhat in their winter cluster. If these things be done during a warm spell, the bees seem to take particular delight in crawling over behind the division-boards, and mix up in the loose chaff, as the latter is put above and around the brood-nest.

It may be urged, that the late feeding of a few colonies might be disastrous to them, as they would not have time to properly ripen and cap over the syrup fed before cold weather set in. That might be so; but last year we did precisely that thing on a much larger scale, and did not lose a *single colony* out of the 201 placed in winter quarters last fall.

At this time of year I believe our colonies were never stronger than they are this fall. They have not been reduced by the sale of bees during the summer months, nor did our apiary become reduced from foul brood. The latter we kept in check, not allowing it to get any sort of start. Last year we had only nuclei to go into winter quarters, and we wintered every one successfully. This year, with few exceptions, our bees cover six and seven frames full. Last year I should not have been surprised if we had lost one-half our colonies. This year I

shall be surprised if we lose any thing over a dozen; but as this wintering problem is as intricate as it is uncertain, we might lose a large percentage of our bees in spite of the fact that every thing is favorable for wintering.

HOW LONG WILL CHAFF LAST IN CHAFF HIVES?

At the close of this season we had something like 100 chaff hives to disinfect. As the surest means to this end we decided to totally remove the chaff and boil the hives. This might seem like quite a difficult operation, but is not so hard if you know how. We turn the hives over on their sides, and with a nail-set and hammer set the nails clear through the siding—that is, the nails which secured the bottom of the hive. If you are careful to get all the nails set through, the bottom readily lifts out. Some chaff hives have been in use for a period of 12 years constantly; and as we drew out the bottoms of the hives we felt pretty sure that we should find old, rotten, and moldy chaff. On the contrary, we were very much surprised to find the chaff as nice, clean, and sweet as the day we put it in, and from all appearances it would have lasted another 12 years, which would probably be as long as the chaff hive itself would have lasted. After removing the chaff it was set aside to be used for bedding for horses, to be worked up into manure. The shell of the hives after the chaff has been removed is immersed in scalding hot water, after which they are set out to dry in the yard. They have all been repacked with clean new chaff, and are now in use again in the apiary.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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MEDINA, NOV. 15, 1887.

My little children, let us not love in word, neither in tongue, but in deed and in truth. 1. JOHN. 3: 18.

THE following note from friend Hutchinson explains itself:

FRIEND ROOT:—I have sold my farm near Rogersville, to my brother—the one who has been with me several years, and have purchased and taken possession of a small place (¾ acre) in the suburbs of Flint, Mich. I still own the apiary, and may eventually bring part of the bees here. W. Z. HUTCHINSON.
Flint, Mich., Nov. 7, 1887.

He writes that a good deal of his correspondence is going to Rogersville. Will those who have occasion to write to him please bear in mind in the future to direct all communications for friend Hutchinson to Flint, Genesee Co., Mich., lock box 1611?

QUESTIONS IN THE QUESTION-BOX DEPARTMENT—
FURTHER DISCUSSION OF.

It occurs to us, that perhaps not a few of our correspondents would like to see some of the questions,

propounded in our Question-Box, discussed more at length; and it is possible that those who have already given brief answers in the department would like to take more space to consider the matter, giving their reasons for their opinions, and the evidence whereby they have arrived at such conclusion. Such discussions upon the vital issues of our pursuit will be highly interesting and profitable, providing too much theory is not brought into action, and providing, too, that the discussions are not carried to such length as to become threadbare and worn out. If you have any further suggestions which you would like to set before the readers, we shall be glad to hear from you. In referring to any particular question, always give the number.

A LIBERAL OFFER TO THOSE WHO ARE WILLING TO COLLECT NEW NAMES FOR THIS JOURNAL.

In consequence of the press of general work, we have been unable to get out our Premium List as we had originally designed. We will try to have it appear in the next issue. In the meantime, for the benefit of those who are desirous of collecting names at once, we offer the following premiums:—

For *ONE new name, with your own renewal*, any of the following books, beautifully bound in cloth, and embossed on side and back in gilt. If sent by mail, 12 cts. must be added for postage: Dickens' Child's History of England, 341 pages.

Dickens' Shorter Stories, 350 pages.

Last Days of Pompeii.

Robinson Crusoe, 472 pages.

Gulliver's Travels.

Bunyan's Holy War, 318 pages.

Sketch-book, by Washington Irving, 374 pages.

For *THREE new names, and your own renewal*:—Ben Hur; a book of 560 pages. This work is "A Story of the Christ," and is wonderfully fascinating.

The offers above are very liberal, as any one can see. This will be a rare opportunity to get some valuable library books free. Call upon your neighboring bee-keeping friends, not subscribers to this journal, and secure one or more of the premiums mentioned above. We would strongly urge you to commence collecting names *at once*.

In sending in new subscriptions, remember to give the full address, with the county; and at the time of sending, state that the names inclosed are "for premiums."

WHAT TO DO WITH HONEY WHEN BROKEN OUT OF THE SECTIONS.

At present we are having very good success in selling such honey at retail, put up as follows: Two cakes of honey are laid in one of the wooden butter-dishes, recently described by Ernest, for bee-feeders. If these are to be retailed at once, nothing is necessary—just sell your customer the honey, plate and all. Of course, you don't need to ask him to bring back a plate that costs less than half a cent, and which weighs less than an ounce. In case, however, 100 lbs. or more of the honey is to be sold out, a pound or two at a time, something must be done to protect the plates of honey from dust, flies, etc. The way we do it is to slip the plate, with its contents, into a paper bag; fold the end so that it makes a tight package. You can then place them on shelves along in a row. Honey that would have brought 20 cts. a pound, if it hadn't been broken, sells pretty fairly at 18 cts.; but we have to lose the weight of the section which was thrown away. This is one ounce or more; and with the honey that

drips we don't realize over 16 cts., so that it is not to be advised, unless you have broken honey or something in large frames or boxes which must be cut out, to retail. These same wooden plates will do very well for retailing extracted honey, especially if it is candied solid. Slip the plate with its contents into a paper bag, then your customer has a very good package to carry home; but he must handle it as he does butter—he can not very well throw any thing on top of it.

"A FALSE BALANCE IS ABOMINATION TO THE LORD; BUT A JUST WEIGHT IS HIS DELIGHT."

APPLES are getting to be very scarce. While a year ago we did not dare to offer 25 cts. a bushel for nice winter apples, we have, during the past few weeks, been offering 50, 60, and 75; and as we could not get them even then, we sent to Cleveland for choice apples, which were offered for \$2.50 a barrel. There used to be three bushels in a barrel; and as the barrel is worth 10 cts. to pack things in, our apples would cost us exactly 80 cts. a bushel, and we could retail them on the wagon for 25 cts. a peck, or a little more. Well, the apples were large, smooth, and nice; but the barrels, instead of having the nice plump look that barrels used to have, were lank and lean—sides almost straight, and not as large around as barrels used to be, either. Come to measure them out, instead of three bushels there was only a little over two. Come to take notice of the barrels, we find that, although they were pretty much one height, they are of all diameters, from the old-fashioned flour-barrel, down to something that looks more like the joint of a stovepipe, both in form and size. Instead of selling our apples at 25 cts. a peck, we had to ask 35 and 40. Of course, that made even our old customers accuse us of being greedy and avaricious. Why didn't the man who advertised his apples say plainly that his barrels were of the modern contracted sort? Perhaps he may say he bought them for barrels, and that folks who buy must take their chances as he did. But I tell you, friends, this whole business is not only abominable in God's sight, but it is abominable in the sight of every good man. It spoils faith in humanity, and I don't know but that it spoils faith in God, to see the world going over into this kind of swindling. Who is cheated in the end? I believe it is the man who decides to put up his produce in such a barrel. I feel so vexed when I look at these miserable excuses for barrels, that I feel like saying that I never want anything more to do with the man who sold them to me, in any way, shape, or manner. You may say that he didn't put them up; but, my friend, he accepted them from the producer—from the man who sold them to him, and he proposed to get custom by advertising them as barrels of apples. Now, is there any thing in our own industry like this barrel business? If so, may God help us to get it out. Scant measure may give a man a few cents for the time being, but eventually his good name is gone, his reputation is gone. Not only is he losing in this world, but he is losing in the world to come. He neither lays up treasure on earth nor in heaven. If anybody has any good honest apples to sell, in good honest barrels, we should like to hear from him. Not only is just weight a delight to God, but it is a delight to humanity the world over, and the best advertisement that any man can possibly have of himself and of his business.

LOOK HERE!

A complete hive for comb honey, for only \$1.30. Planer-sawed, V-groove sections a specialty. Price list free.
J. M. KINZIE & CO.,
 17tfdb **Rochester, Oakland Co., Mich.**

FOR SALE IN CALIFORNIA!

On account of the death of the proprietor, J. D. Enas' ranch of 240 acres, part in fruit, 80 stands of bees, steam machinery for the manufacture of supplies, a well-established business; land will be sold in 40 or 80 acre tracts. Stock, farming implements, and a large stock of apianian supplies. For particulars address
MRS. J. D. ENAS,
 20-6d **Box 306, Napa City, Cal.**

W. Z. HUTCHINSON,

FLINT, GENESEE CO., MICH.,

Has published a neat little book of 45 pages, entitled "The Production of Comb Honey." Its distinctive feature is the thorough manner in which it treats of the use and non-use of foundation. Many other points are, however, touched upon. For instance, it tells how to make the most out of unfinished sections, and how to winter bees with the least expense, and bring them through to the honey harvest in the best possible shape.

Price of book, 25 cents. Stamps taken, either U. S. or Canadian. 10tfdb

NOTICE!

TO DEALERS IN BEE-SUPPLIES.

We are now ready to figure with you for your next season's supplies.

G. B. LEWIS & CO.,

11tfdb

Watertown, Wis.

HEADQUARTERS

For Cards and Stationery for Bee-keepers and Others.

Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. See Here, 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, \$1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address **J. H. MARTIN, Hartford, N. Y.**
 20tfdb

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." 11tfdb

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

FOR SALE.

A bee-ranch in San Diego Co., Cal., containing 320 acres of land, 400 stands of bees, empty hives, extractors, tank, and other fixings necessary to run a first-class bee-ranch. For particulars and price inquire of
E. LOVETT,
 21-2db **Bernardo, San Diego Co., Cal.**

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; Dougherty & Wiley, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; C. H. Green, Waukesha, Wis.; Smith & Goodell, Rock Falls, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, 2122 North Front Street, Phil'a, Pa.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y.; Barton, Forsgard & Barnes, Waco, McLennan Co., Texas; W. E. Clark, Oriskany, N. Y.; G. B. Lewis & Co., Watertown, Wis.; E. F. Smith, Smyrna, N. Y.; J. Mattoon, and W. J. Stratton, Atwater, O.; Oliver Foster, Mt. Vernon, Iowa, and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,

3btfd

Hamilton, Hancock Co., Illinois.

If you Wish to Obtain the Highest Price for Honey

THIS SEASON,

WRITE TO HEADQUARTERS,

F. G. STROHMMEYER & CO.,

Wholesale Honey Merchants,

17-4db

122 Water St., New York.

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO. PUBLISHERS. BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading bee-keepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

APPLE-TREES.

600 Greenings, Baldwins, and Spies; 5 trees, 6 to 8 feet high, \$1.00; 8 to 10 ft., \$1.25; 10 or more, 6 to 8 ft., 15 cts. each; 8 to 10 ft., 20 cts. each. Strictly choice trees, and twice the size of common nursery stock. **C. M. GOODSPEED, Thorn Hill, N. Y.**
 2-48-d

ON 30 DAYS' TRIAL.

THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail, Circulars free. **EGGLESTON TRUSS CO., Chicago, Ill.**

20-7db



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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14tfdb A. H. DUFF, Creighton, O.

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20tfdb

WANTED.—Situation for 1888, by an expert bee-keeper. Address FRANK CURT, 20tfdb Box 62, East St. Louis, Ill.

WANTED.—5000 lbs. dark extracted candied honey, in exchange for raspberry, strawberry, and Chapman honey-plants. 22tfdb DR. A. B. MASON, Auburndale, O.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To buy 200 colonies of Italians in chaff and Simplicity hives, to be delivered April 1st. Also extracted honey, to be delivered now. 23d J. B. ALEXANDER, Hartford City, Ind.

WANTED.—To exchange, Alderbrook Poultry-Farm, 12 acres, for bees or personal property, or offers, or will rent. D. E. DARROW, 23d West Eaton, N. Y.

WANTED.—To exchange 2 trios of Houdan Chicks and one Brown Leghorn cockerel, on sections, foundation, or bees, the latter to be delivered in the spring of 1888; the above birds are very fine. 23d Address P. D. MILLER, Grapeville, Westm'd Co., Pa.

G. B. LEWIS & CO.

We make the best Bee-Hives, the best sections, the best shipping-crates, the best frames, etc.

We sell them at the lowest prices.

Write for free illustrated catalogue.

G. B. LEWIS & CO.
WATERTOWN, WIS. 1tfdb.

FOR SALE.

A bee-ranch in San Diego Co., Cal., containing 320 acres of land, 400 stands of bees, empty hives, extractors, tank, and other fixings necessary to run a first-class bee-ranch. For particulars and price inquire of E. LOVETT, Bernardo, San Diego Co., Cal. 21-2db

FOR THE SEASON OF 1888.

Headquarters in the South.

TENTH ANNUAL CATALOGUE NOW READY.

Prices of hives, frames, sections, etc., greatly reduced. The only steam-factory erected in the South, exclusively for the manufacture of Bee-Keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS.

with pure Italian queen, containing 3 pounds of bees when secured—in April and May, \$4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Tenth Annual Catalogue.

P. L. VIALLO.

Bayou Goula, Iberville Parish, La.

DADANT'S FOUNDATION FACTORY, WHOLE-SALE AND RETAIL. See advertisement in another column. 3btfdb

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable. Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If warranted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.

*H. H. Brown, Light Street, Columbia Co., Pa. 1tf

*Paul L. Viallon, Bayou Goula, La. 19tfdb

*S. F. Newman, Norwalk, Huron Co., O. 19tfdb

*D. G. Edmiston, Adrian, Len. Co., Mich. 19tfdb

*Jos. Byrne, Ward's Creek, East Baton Rouge 19tfdb Par., La.

*E. Burke, Vincennes, Knox Co., Ind. 5-3

C. C. Vaughn, Columbia, Tenn. 21tfdb

J. M. Jenkins, Wetumpka, Ala. 3-1

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.

P. L. Viallon, Bayou Goula, Iberville Par., La. 21tfdb

C. W. Costellow, Waterboro, York Co., Me. 1-23

R. B. Leahy, Higginsville, Laf. Co., Mo. 21tfdb

J. M. Jenkins, Wetumpka, Ala. 3-1

F. A. Snell, Milledgeville, Carroll Co., Ill. 4-5

HONEY COLUMN.

CITY MARKETS.

COLUMBUS.—*Honey.*—Market unchanged. Receipts are light. We quote choice white honey, 18@20c; extracted, 8@10. *Beeswax*, 20@25c.

EARLE CLICKINGER,
Nov. 22. 117 South 4th St., Columbus, Ohio.

NEW YORK.—*Honey.*—Fancy white, 1-lb. sections, 17@19c; 2 lbs., 15@16; lower grades, 1 and 2c per lb. less; buckwheat, 1 lb. sections, 11@12c; 2 lbs., 10@11; extracted, white, 9@10; buckwheat, 6@7. Market continues firm at above quotations.

F. G. STROHMAYER & Co.,
Nov. 22. 122 Water St., New York.

KANSAS CITY.—*Honey.*—The demand for 1-lb. sections is good; very little on the market. 1-lb. sections, white, 20@22c; dark, 15@17; 2 lbs., white, 18c; dark, 15@16; extracted, white, 6½@7; dark, 5@6.

HAMBLIN & BEARNS,
Nov. 23. 514 Walnut St., Kansas City, Mo.

PHILADELPHIA.—*Honey.*—The demand seems to be curtailed by the high quotations when price of honey is over 15 or 16c per lb. Quotations here are nominally the same, but there is no movement at the prices. To sell at present is to take less. White clover, 1 lb. sections, 17@18c; buckwheat, 11@12; 2-lb. sections, and inferior quality, is 1 to 2c lower; extracted, 7@10c. Buyers here object to glassed combs; glass, at 12 to 16c per lb., is too high, even if lined with honey.

PANCOAST & GRIFFITHS,
Nov. 21. 122 Dock St., Philadelphia, Pa.

MILWAUKEE.—*Honey.*—This market is firm on values of honey. Demand fair. Can quote choice white 1-lb. sections, 20@21c; 2 lbs., 18@19; 2½ lbs., 16@18; extracted, white, in kegs and half-bbls., 8½@9c; in cans and pails, 9@10; amber and dark, in kegs, 6½@7c. *Beeswax*, nominal, 22@25.

A. V. BISHOP,
Nov. 29. Milwaukee, Wis.

BOSTON.—*Honey.*—Fancy one-pound comb, 18@20c; two-pound comb, 17@18c. Extracted, 7@8c. Trade is not very brisk.

BLAKE & RIPLEY,
Nov. 21. 57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—We quote choice comb 16@18c; latter is for choice white clover in good condition, and in 1-lb. sections. Strained, in bbls., 4½@5 cts. Extra fancy, of bright color and in No. 1 packages, ¼ cent advance on above. Extracted, in bbls., 5½@6c; in cans, 7@8c. *Beeswax*, 20½c for prime.

Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

D. G. TUTT & Co.,
Nov. 21. 206 N. Commercial St., St. Louis, Mo.

CLEVELAND.—*Honey.*—Honey is in fair demand at 19@20c per lb. for 1-lb. sections of white clover and basswood; 2-lb. sections, about 2c per lb. less.

A. C. KENDEL,
Nov. 21. 115 Ontario St., Cleveland, O.

CHICAGO.—*Honey.*—Receipts are increasing, and the surplus, or stock on hand over the daily demand, is larger than it has been at any time this season. Prices range from 15@20c per lb. for the 1-lb. sections of white; 2 lbs. sections, same grade, 15@16c; extracted, 7@10. *Beeswax*, 23@25.

R. A. BURNETT,
Nov. 21. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—Honey is moving very rapidly, with indications for further advance in prices. White, extracted goods, scarce.

THURBER, WHYLAND & Co.,
Nov. 22. New York City.

KANSAS CITY.—*Honey.*—White 1-pound sections, 18@20c; 2 lbs., 16@18; 1 lb., dark, 16@18; extracted, white clover or basswood, 8@9; dark, in bbls., 3@5; California 1 lb. sections, white, 18@19c; 2 lbs. white, 18c; extracted, 8@9. *Beeswax*, 21@23c.

CLEMONS, CLOON & Co.,
Nov. 25. Kansas City, Mo.

DETROIT.—*Honey.*—Best white, in 1-lb. sections, 17@18c; extracted, 9@10. *Beeswax*, 21@23c.

Bell Branch, Mich., Nov. 22. M. H. HUNT.

FOR SALE.—About 1000 lbs. clover and basswood extracted honey, and about 500 lbs. buckwheat extracted honey. This honey is put up in kegs, holding about 160 lbs. each. Write me for prices.

Charlton, Saratoga Co., N. Y. J. I. PARENT.

FOR SALE.—I can yet furnish a few thousand lbs. of extra fine comb honey in 1-lb. sections and 2-lb. cases, at 18 cents cash here. This is the last lot of honey I am able to secure. First come, first served.

Des Moines, Ia. JOS. NYSEWANDER.

CAUTION.

Do not ship me Honey without previous correspondence. I will not be answerable for the results, if you do.

ARTHUR TODD,
2122 N. Front, Philadelphia.

UNTIL April First.—Frames only. We will cut to order, regular or odd size brood-frames for \$1.50 per 100; 500 \$6.25; 1000, \$10.00; 10,000, \$95.00. When ordering, send sample frame in flat, if possible. All orders shipped promptly. Freight prepaid on all orders of consequence to your nearest large city. Remit by P. O. order on Salem, Mass.

Middleton, Mass. J. B. THOMAS & Co.

FOR SALE.—Eight or ten strong hives of bees, at \$3.50 each. Also 15 gallons of bright thick honey, from California; \$1.00 per gallon. I have one of Muth's large extractors for sale, nearly new. How much am I offered? Or I will exchange it for a good cabinet-organ.

Middleton, Tenn. MRS. A. V. CAMPBELL.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

"FABLES AND ALLEGORIES."

Much to my surprise, we have sold, during the last year, over sixty of these beautiful and valuable books. Although at the time I considered the book well worth \$2.00, I didn't suppose there were many who would want to pay that price for a book of that character. When we take into consideration, however, that it is not only about as handsome a book as can be found in our bookstores, externally and internally, but that it is also a book in which goldlines and purity shine forth from every page, it is perhaps not so very surprising. The book is not, in one sense, a religious book, for the principles are taught indirectly, in the form of a little story, or fable, and sometimes the reader does not see at once the application; but when it bursts upon him he feels a spirit of thankfulness for having been taught perhaps the very lesson he needed by way of a sort of parable. The book contains 512 pages and 350 engravings. Many of the latter are some of the finest engravings that are to be found in modern print. The author of this work, Mr. Charles Foster, went to his heavenly rest during the past year, but it seems to me that his book will stand, much as the Pilgrim's Progress does, to help humanity through ages to come. Our new stock of these books for the coming holidays will be even newer than those of last year, for they are in gilt binding; but the price will remain the same; viz. \$2.00 each; two for \$3.50, three for \$1.65 each; five or more, at 66¢ each. If wanted by mail, you will have to send 32 cts. extra, as the book is so very large and heavy. We can send it for five new names for GLEANINGS, you paying postage.

A. I. ROOT, Medina, O.

CONVENTION NOTICES.

The Nebraska bee-keepers will meet in Lincoln, Neb., on Jan. 11, 1888, for their annual meeting.

Humbolt, Neb., Nov. 11, 1887. HENRY PATTERSON, Sec.

The Susquehanna County Bee-Keepers' Association will meet at New Milford, on Jan. 7, 1888. Subjects for discussion: The best way to prevent swarming; also, Is it advisable to Italianize? All bee-keepers are cordially invited.

H. M. SEELEY, Sec., Harford, Pa.

The next annual meeting of the Mich. State B. K. Association will be held at East Saginaw, in the city-council room, Dec. 7 and 8. Headquarters at the Sherman House, where rates have been secured at \$1.25 per day. All are invited and we expect a large attendance.

Clinton, Mich., Nov. 18, 1887. H. D. CUTTING, Sec.

The Southeastern Michigan Bee-keepers' Association will hold its annual meeting in the Supervisor's room, in the Court-house, at Adrian, Mich., Dec. 15th, 1887, forenoon and afternoon session; also an evening session, if the members fit. A program is now preparing, including interesting papers on various topics of importance. The question-box will be a prominent feature. Come prepared to ask and answer questions. Election of officers will take place at the afternoon meeting. There will be plenty of room for exhibiting fixtures, so bring along any thing you may have that will be of interest to those of the pursuit. Those who are not familiar with the interior of the Court-house should enter at the east front and go up the stairway to the right, then turn to the left. The Lenawee Co. Horticultural Society meets Dec. 14th. Those who can will find it profitable to attend the meetings of both societies.

Adrian, Mich. A. M. GANDER, Sec'y.



Vol. XV.

Dec. 1, 1887.

No. 23.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75, 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

STATISTICS IN REGARD TO THE HONEY-CROP.

A MATTER THAT WAS STARTED AT THE RECENT CONVENTION IN CHICAGO.

DEAR MR. EDITOR:—Let me call your attention again to the matter of statistics proposed at Chicago. It seems to me that this is one of the most hopeful schemes proposed in the interest of bee-keepers for a long time. I doubt if any thing could be suggested that would aid bee-keepers more; and I also believe that such an enterprise successfully carried out will prove a great gain to the editor whose enterprise shall make it a success.

I know of no occupation which would be more benefited by accurate statistics than would bee-keeping. Our commodities are so easily shipped that each part of the country feels the effect of the production of every other part. Accurate knowledge of the exact status of the bee-industry the past summer, early in the season, would have saved thousands of dollars to the bee-keepers. To illustrate:

A bee-keeper said to me early in August, "Do you suppose I could sell at the college a barrel of honey?"

I asked at what price.

He named the price of last year. I said, "Yes, but don't you do it. You will get more."

He kept it, and has sold that barrel and his entire crop for three or four cents more per pound than he proposed. How many such cases would there have been, could some wise augurer have correctly foretold the coming market in mid-summer? That

is just what you can do, Mr. Editor, if you make this plan work. It goes without saying, that every one would have to have your paper.

What statistics would it be desirable to collect? It seems to me we should have reports in May, June, July, and September. In these months you would need to send blank postals to your special correspondents, and they would fill them out and report at once. In May we would have reports as to wintering; in June, July, and September, as to the honey-harvest.

As to the correspondents, I would get from two to four or six in each State and Territory. I would get candid, reliable men, without pay if I could, but get them any way. I would have these men so scattered as to represent the several parts of each State, and have them pledged to give as quick and accurate reports as possible, using their best information and judgment. To illustrate:

I would suggest Mr. Hilton for Northern Michigan; Mr. Taylor for Eastern; Mr. Cutting for Southern, and Mr. Heddon for Western. If Central Michigan were included, your humble servant might do; and there would be one advantage in securing him—he would gladly do the work gratis. When these several reports come to your office you could summarize them something as follows: Bees wintered well in Michigan; great bee-mortality in Northern Ohio; excellent honey crop in New York and New England. No honey in Michigan and Wisconsin. Thus you could write up a summary of the reports in the fewest possible words.

It might be urged, that the publication of the reports verbatim would give confidence. But the report would have a solid basis, and would be correct,

and so would soon gain universal confidence. A summary would take far less room in your valuable paper, and the reading would take far less time of your readers.

I am glad to outline this scheme for GLEANINGS, for I believe it has great merit, and I should like to know what others think of the plan. A. J. COOK.

Agricultural College, Mich.

Friend C., I have seen a good many just such cases as the one you mention; and this is one of the causes of this trouble so much talked about for a year or two back, of having our markets demoralized by bee-keepers who are not posted, and do not know what honey is worth. Such a man will carry his crop into town; and even if there is a great scarcity, he will, without consideration, furnish honey at what he received the year before; and then every other bee-keeper who thinks of asking the proper price will be accused of wanting to cheat. I do believe that this matter of statistics will do very much to cure this class of evils; and, in fact, the fresh live reports we have had from our city commission merchants for a year or two back have been starting life in this matter. You are doubtless right in regard to the plan of taking up the work, and we enter into it with all our hearts. As our first honey comes from the extreme South, we might start the thing, say away down in Florida, just as soon as they get their very first honey in February, or perhaps even in January. Now, who is there among our friends in Florida who can report new honey first? The present scarcity and high prices will be an excellent time to get them started. I do not suppose that new honey will compare at all in prices with new strawberries and such like rarities; but if the honey is well ripened, and the source good, I think it ought to bring enough to pay for shipping North.

RECORDING THE CONDITION OF OUR HIVES.

FRIEND SWINSON'S PLAN, AND HOW HE TRACES THE PEDIGREE OF HIS QUEENS.

ON page 832 Ernest says, "If any of our readers know of a better system, different from the slate tablets and tacks, for recording the condition of the hive, let us hear from you." I will try to make plain the plan that is used in the Tar-Heel Apiaries—one that I have used for the past three years; one that I think perfect in every respect, and which saves me much trouble and expense of time, etc., besides giving me a great deal of satisfaction.

1. I went forward and placed a number on every stand that I had prepared for a colony of bees. 2. I procured me a pocket note-book, of a suitable size for convenience; and on every page, at the head, I placed numbers to correspond with each number of the stands I had made for bees, ranging in my home apiary from 1 to 100. Every colony that is placed on stand 59, during 1887, becomes No. 59, and remains so as long as it occupies the stand of that number. The same is true of every queen that is so placed; but each removal of a queen, hive, or other change made, is duly recorded, with the date of the change. Thus, if I change, on June 1st, the queens of colo-

nies Nos. 2 and 10, under No. 10 I say, "I give queen No. $\frac{1}{2}$ to No. 2, and put No. $\frac{3}{8}$ here, June 1;" and under No. 2 I say, "I give queen No. $\frac{3}{8}$ to No. 10, and put No. $\frac{1}{2}$ here, June 1." You see, I use a double number. For instance, in number $\frac{1}{2}$, the numerator, or first number, indicates the stand where the queen now is. The other number, or denominator, indicates the number of the queen's mother. To make it more plain I will give the record as made for 1887, of stand No. 22.

Frame, new eggs, No. 0, Mar. 30. Hed (hatched) q. Apr. 13. Eggs, Apr. 27. Sent to G. W. Shearer, Apr. 28. F. 39 with cell, Apr. 29. Hed May 2. Eggs, May 11. Sent to B. Barnes, May 11. Fr. No. 11, with cell, May 11. Hed May 16. Eggs, May 25. Sent to H. P. Faucett, May 27. Gave hed q. No. 70, May 30. Gone June 1. Cell 49 will hch abt. June 10. June 1, hed June 7. Gone June 17. C. 30, June 17; hed June 21; laying, and to Ch. Patten, July 4. C. 60, July 12, killed. C. 55, July 16. Patten's proves to be a fine tested q. C. gone July 22. F. 55, July 25; gave hed q. No. 16, July 26. Eggs, Aug. 5. Tested, and to C. D. Duval, Aug. 26. C. 49, Sept. 6, etc.

This plan gives me a correct account of every change made, and the record is made at the time the change is made, the book and pencil being kept in my pocket at all times when working in the apiary. Of course, the record could be made more full. It can be looked over in the office, and the condition of every hive and nucleus in the apiary learned before going out to work, and know just what colonies need attention, the nature of it, how long it can be delayed without loss, or how soon it should be attended to, even though you are a mile or more from the apiary.

My plan of numbering queens is this: Take No. $\frac{1}{2}$ for an example: No. $\frac{1}{2}$ is bred of No. $\frac{1}{2}$, and No. $\frac{1}{2}$ is bred of No. 52, a selected Syrio-albino, sent me by Tinker in 1886. Then, again, take No. $\frac{3}{8}$, one of the finest queens I ever saw. She is bred of No. $\frac{1}{2}$; $\frac{1}{2}$ of $\frac{1}{2}$; $\frac{1}{2}$ of $\frac{1}{2}$; $\frac{1}{2}$ of $\frac{1}{2}$; $\frac{1}{2}$ of No. 47, the first albino queen I ever had, and bought in 1884. By this plan of numbering it is almost impossible to err, or to get two queens of the same number, though they should occupy, during the season, the same numbered stands as $\frac{1}{2}$ and $\frac{1}{2}$ both occupied (stand No. 17), and though both bear very different numbers, being very distinctly bred queens. By my plan you need not see a colony or any part of it, to know its condition, as a rule, if the record is correctly kept at each examination or change; and then in after-years I can refer back to these old records, and see any record made by any particular colony—whom certain queens were sold to, their age, quality, etc.

ABBOTT L. SWINSON.

Goldsboro, N. C., Nov. 17, 1887.

Thanks, friend S. I am aware that some, and perhaps a good many, use some such system as yours for recording the condition of the hives. Notwithstanding there are good bee-keepers who do use the book method, its advantages never seemed to me to be important enough to adopt it. It is occasionally convenient to have all the hives numbered; for instance, you can tell your apiarist that hive No. 27, we will say, has neither queen nor eggs, and wants to be supplied with both. He can go right to the hive in question, without being told what part of the apiary, in what row, or near what pear-tree it is. Another feature of this book system

that I like is, that the record can be carried on indefinitely. We can thus keep the pedigree of a queen, as far as it is possible. Of course, the pedigree of bees and queens can be kept only on the maternal side. Still another feature that commends itself to me, is, that neither wind, rain, nor other climatic conditions can in any way affect this record. Notwithstanding these advantages, in my mind there are one or two serious objections. In the first place, in going through the apiary you have always got to carry the book with you; and it strikes me, although I have never tried it, that the record would in time become soiled with honey, propolis, beeswax, etc. At any rate, I am sure that, as I ordinarily work among the bees, whether in queen-rearing, cutting out cells, or in comb-honey production, my hands would become more or less soiled. To reach into a hip-pocket, and pull out the record with these soiled hands—well, to me it would be rather unpleasant.

Second, the book is liable to get lost. I will suppose that I have kept a record of my apiary in this way; and I will assume, also, that I am in the height of my queen-rearing business, and that orders are coming in fast. My apiary is large, and it is impossible for me to remember what, in every case, this or that hive contains. It transpires all at once that my book is missing. Suppose it does not turn up. What am I to do? I presume that those who use the book plan of making records are not in the habit of losing their books; but if there are bee-keepers like myself (and I believe there are a good many) they would be almost sure to lose it.

Third, with your book system the condition of the hive can not be told at a glance some distance away. With the slate tablets we use, and with the tacks, we have a system by which the requirements of a hive, important in their nature, can be told at a glance. In the department of *Our Own Apiary*, I have more to say about this subject. See p. 911.

SETTING BEES IN EARLY.

FRIEND DOOLITTLE GIVES US SOME FACTS FROM EXPERIENCE.

ALTHOUGH we have had and are having an unusually dry and pleasant fall, in which it might appear that it would be best to have bees out on their summer stands a little later than usual, when intended for cellar wintering, yet, notwithstanding, I set my bees in, the cellar on Nov. 8th and 9th, in as dry and nice a condition as they ever were, preferring to do this rather than trust to the chance of setting them in wet and frosty, a few weeks later. The last of Nov. and first of Dec. is the time given by most authorities as best for setting the bees in. I used to think the same, being very anxious to give the bees an opportunity for the latest possible flight, so that they could better stand their long confinement.

Up to a few years ago I had supposed a late flight very beneficial; but at that time I resolved to experiment a little; so on Nov. 3d I set one-third of the colonies (intended for cellar wintering) in the cellar. These colonies had not flown since about the 20th of Oct., which caused me to hesitate a lit-

tle; but I had resolved to make the trial, even if I lost by so doing. The morning they were set in, the mercury marked 44°, and I thought I should have trouble in getting them in, on account of the necessary disturbance, fearing they might fly out badly. However, much to my surprise, none offered to fly, and were very much less disturbed than any I had ever set in before. Of the other two-thirds left out, one-third was set in Nov. 12, after having a nice flight on the 11th. These were also dry and nice. The last third was left out till the usual time of putting in. There had been rains and snows, while it was quite cold when they were set in, so that the hives were frozen down; and in lifting they came up with a crack. This jarred and disturbed the bees so that they came out all over the front of the hive after being got in the cellar. I now learned that bees could be set in the cellar with less disturbance when the weather was about as warm outside of the cellar as the mercury marked inside; and my experience since has proved that such is the case. Now for the result:

Of course, those set in the cellar last must be set out first. Again, I found them more easily disturbed in setting out than the others, showing that they had hardly quieted down in all winter, or else remembered their experience of the fall previous. On setting out of the cellar there seemed to be little difference as to strength of colonies, although if any it was in favor of those first set in. Later on, however, those last set in suffered quite a bit from spring dwindling, thus proving that they had not been as quiet as the others in the cellar; at least, I so attributed it. Between those first set in and the second lot which had a good flight, I could see not a bit of difference, proving that a late fall flight was not at all necessary. I think there is nothing gained by leaving bees out late in the fall, but on the contrary much is lost, and having my bees winter well every winter since practicing setting in early, proves that this thought is correct.

Again, all concede that bees will not winter as well with the inside of the hive covered with frost, which melts as soon as placed in the cellar, thus causing the bees to be damp, even if the hive is not soaked to quite an extent by wet weather, which it is quite likely to be. Besides the item of setting bees in the cellar early while dry and nice, I think the character of the cellar has much to do with successful wintering. Unless it will maintain an even temperature of from 41 to 47°, standing the most of the time from 43 to 45°, I should prefer bees outdoors in chaff-packed hives; and this temperature, too, whether bees were in it or not. Some depend on the bees to control the temperature; but where it takes the bees to keep the temperature up in very cold weather, it is very liable to be too warm during a mild spell of weather, during late winter or early spring. Besides, when bees must burn honey to warm their hives and the room they are in, it causes a great loss of stores and vitality. One colony of bees will winter as well in my cellar as 150, or all that could be crowded in. Herein is the advantage of a special cellar for bees, 8 feet under ground, in a side hill, according to my opinion. Such a place for the bees is one long dark night, with an even temperature of from 5 to 6 months' duration.

G. M. DOOLITTLE.

Borodino, N. Y., Nov. 18, 1887.

Friend D., your instructions hit it this year, certainly. To-day is the 1st of Decem-

ber, and we have had zero weather every night for almost a week—one night 5 below zero, and this in the last of November. Every season has its peculiarities and unheard-of extremes; and it is an excellent idea to be prepared for these. I am very much interested in that cave of yours in the side-hill, and I don't remember that you have ever given us a good description of it; but unless you get some cold air from outdoors, I don't see how you will manage to keep the temperature down below 47. When we discussed this about two years ago, I think that we decided the average temperature of the earth, say eight feet below the surface, is about 52°. Friend Green says 52 is the temperature of the coal-mines in Dayton, Ill. As most coal-mines, however, have ventilating air-passages, I suppose they would not give the true temperature of the earth, unless at such times as when the air is still. Mammoth Cave, I believe, averages about 55°. I suppose the temperature of deep wells will decide pretty nearly the average temperature of the earth in any given locality. As a good many recommend a stove to warm up a bee-cave occasionally, is it likely that 55° would be any too warm? In an article for next issue, Dr. Mason says he is coming to the same conclusions as yourself; but he finds the bees very quiet at a temperature not below 48 nor above 50° during October and November. With our plan of packing them in chaff hives outdoors, however, I think we come to pretty nearly the same result, for our bees are all finished up and put away for winter before the middle of October, as a rule, and they seldom fly much after that time.

THOSE UNFINISHED SECTIONS.

THEIR ADVANTAGES AND DISADVANTAGES DISCUSSED; FRIEND ROBBINS EXPRESSES HIMSELF DECIDEDLY IN FAVOR OF NEW FOUNDATION.

I PERCEIVE by Mr. Green's article on page 764, that he is not partial to them. I have for some time been wondering if I were alone in this matter. I used to regard them as quite valuable, but they are becoming less a favorite with me every year. They possess two qualities of some value: 1. They do often entice bees into the surplus arrangements a little earlier than they would otherwise enter them; and the comb being already built, there is that much gained. I usually put them in the rear end of the case; or, when I use wide frames, I place them nearly or quite over the center of the brood-nest, with one or two frames of sections containing foundation starters at one side. As these approach completion, I put other frames in the opposite side. In that way the sections containing comb are finished first. On our own table we use those sections that are not quite suitable for the markets. Many of these, especially those taken off in the fall, have rows of empty cells next to the box, on all sides. I cut the honey out, and leave the unfilled comb in the box. These natural starters I used to put on the hive the next year, and I flattered myself at first that it was a brilliant idea; but more decidedly than the idea lifted me up did its outcome set me down. The bees, I found, would work all around these sections; and boxes

containing only fresh foundation starters would be filled while these were yet untouched. Yet, unfinished sections put back as the bees had left them would be as readily built out and finished as any. When placed at the extreme side or end of the hive they are not filled out so readily.

A secondary consideration here, is their convenience in case a frame or super, when taken off, contains no sections, or, at least, only a few that can be profitably marketed or used. The super can be packed away, and then in the rush early in the season it can be easily put in place again.

Again, if one must feed, particularly in the spring, these unfinished sections are the cheapest, handiest feeder known. Just set them on the alighting-board, drum on the front of the hive till the bees come flocking out, and it is done. Of course, it is best to take the emptied sections away in the morning. If those in the cases contain honey they can be placed on top of the sheet, after the chaff packing has been turned up to furnish a passage for the bees. I often, in place of extracting the honey, at least if the quantity of honey is not great, put the sections in an empty hive and close it up so nearly as to leave an entrance for only one bee at a time. The bees will quietly and harmlessly remove the honey to their hives.

The foregoing are their advantages; but the disadvantages are nearly or quite enough to outweigh all benefit derived from them. It is worth them all to keep them over. If one has any thing of a crop of honey it does, not leave much surplus room in which to keep them. Air, light, and dust, if off the hive (and the bees, if for any reason they are left on the hive), will darken their edges, and, as a result, we have bad-looking honey. If the box is nearly full of comb, the finished section has a dirty, ugly appearance that quite mars it when placed beside the fresh white ones. If the section is only partly filled when put on the hive, I find, on cutting into it when filled, a black streak that tells precisely where the old leaves off and the new begins. This looks bad. I have never heard a complaint from a customer, concerning such honey; but I know not what the many consumers of my honey, who do not know me personally, think about it. I am convinced of this: It is impossible to raise gilt-edge honey from any old combs or natural starters. The comb in these unfinished sections will produce nearly wax enough to purchase half-sheets of foundation, and there is scarcely anything, according to my observation, on which bees like better to go to work than nice fresh foundation. Half-sheets or less will start them nicely. The presence of this pure wax is hardly perceptible to me, nor, I think, to others; and as a reputation as the producer of a first-class article must prove a part of one's best capital, I have decided that it will pay me to pretty generally discard all unfinished combs. I shall use them only when their advantages will be pretty obvious. The old sections I shall wash up and use again. Many of them scarcely become soiled at all. But even if they do, folks look much more at the honey than at the package. Generally the latter, at least in my home market, is not noticed when delivered to customers, and the sides of the sections are not seen as they sit in the case at the retailer's. Still, I may yet find reason to throw out every soiled box.

GEO. F. ROBBINS, 57, 65, 52.

Mechanicsburg, Ill., Nov. 13, 1887.

Friend R., it is not only astonishing, but it is very gratifying to find how many have been coming to conclusions in this matter, all in one line; and yet it seems a little strange that the subject was never discussed until within the past few months. When we first started to make foundation I had hopes that the bees would take hold of it and go to work *nearly* as well as on starters of clean white natural combs; but in my wildest and most enthusiastic moments it never occurred to me that foundation starters would ever get to be even *better* than partly filled sections. I am very much gratified to see that the discussion agrees so nearly on all these points that are coming out.—In regard to cleaning up old sections, we have been in the habit of making them look nice by rubbing them with a piece of sandpaper tacked to a board; but, if you have ever tried it, it takes a good while to make a section look even passable; and when a complete section can be purchased for less than half a cent, does it pay to occupy much time in scraping them? If you have hands who have nothing to do during winter, it might do to keep them out of mischief. Bright new basswood, right from the buzz-saw or from the box wherein they were packed the very day they were made, seems to have a freshness and attractiveness that is hard to imitate by scraping and sandpapering old sections. One thing that pleased me so much in the streets of Chicago was to see most of the goods looking fresh and new, indicating that the sales were so great that new fresh goods were being constantly poured right into the stores, fresh from the factory.

MICHIGAN STATE BEE-KEEPERS' CONVENTION.

THE COMBINED CONVENTION OF BEE-KEEPERS AND FRUIT-GROWERS.

A YEAR ago, Prof. Cook made arrangements to have the bee-keepers of Michigan arrange their meeting in such a way that it would be at the same time and place as that of the Michigan Horticultural Society, with the view of having at least a part of one day devoted to discussing this matter of bees and grapes, or bees and other fruits. His suggestion was that, instead of going to law with each other constantly, we meet in a neighborly way, and in a friendly manner discuss this vexed question. Anybody who knows Prof. Cook might suppose he would be just the man to suggest such proceedings. As it is the first attempt ever made, so far as we are informed, with a view of doing any thing of the kind, we suggest that the meeting be largely attended by prominent bee-keepers. We give below a letter from a progressive young German bee-keeper in the vicinity of East Saginaw. Here is the letter:

WELCOME, BEE-KEEPERS!

Friend Root:—I have a few remarks to make through your journal, in regard to our Michigan State Bee-Keepers' Convention that is going to be

held in this city, Dec. 7, 8, 9. We bee-keepers here in the Saginaw Valley are doing all we can to make this convention a most pleasant and interesting one for those who have the pleasure to attend, and it will not be soon forgotten. I have the pleasure of informing you that Henry M. Youmans, Mayor of East Saginaw, and Earl Heavenrich, President of the Business Men's Association, will make the welcome address. How is that, Bro. Root, for the Michigan bee-keepers? It may be a good many years before we get the convention here again; and while we have the chance, we are doing all we can to show our good will and hearty welcome to the bee-keepers. I hope you will be present, Bro. Root. J. REY.

East Saginaw, Mich., Nov. 25, 1887.

No one can get acquainted with our friend John Rey without having a kindly feeling toward him, and catching at least some of his wide-awake enthusiasm. Below we give the programme of the two conventions, taken from a circular sent by Sec. Cutting.

The following is the scheme of topics to be discussed at the Michigan Horticultural Convention, beginning Monday evening, Dec. 5, 7, 30:

A word of Welcome. Response. President's Annual Address. Discussion on "The Best Winter Apples for Home Use." The Appointment of Committees.

TUESDAY, DEC. 6, 9:30 A. M.—Report on Vegetable-Gardening. Intensive Culture of Ground in Vegetables. Quality in Vegetables as a Result of Culture or Soil. The Ideal Size in Vegetables. Lessons of the Last Season's Drought to the Gardener.

1:30 P. M.—Report on Landscape Gardening. The Thorns as Decorative Trees and Shrubs. Success with Ferns for Outdoor Planting. Bedding-Plants and their Management. Grouping for Effect. Carpet Bedding. Watering Lawns. Front Fences and Division Fences on City and Village Lots.

7 P. M.—Report on Entomology. Discussion on Insect-Pests. Report of our Delegate to the Washington Convention of those interested in Agricultural Experiments. Experiments in Pomology in Michigan.

WEDNESDAY, DEC. 7, 9:30 A. M.—Report of Treasurer. Annual Statement of the Librarian. Report of the Secretary. Election of Officers. Reports of Officers. Reports of Committees. Miscellaneous Business.

1:30.—The afternoon session will be held jointly with the Bee-keepers' Association, whose programme we here give:

WEDNESDAY, DEC. 7, 1:30 P. M.—Joint Convention with Horticulturists.—Do Bees Injure Maturing Fruits? What Trees are Valuable for Honey, and also Useful for Decorative Purposes about a Homestead? How Great are the Benefits of Honey-Bees in Promoting the Setting of Fruits? How does Bee-Keeping Supplement Horticulture Commercially?

7:30 P. M.—Report of last Convention, by the Secretary. Financial Statement. The President's Annual Address. Appointment of Committees.

THURSDAY, DEC. 8, 9:30 A. M.—Opening of the Question-Box. Comb V. Extracted Honey, by R. L. Taylor. Lessons from the past Season.

1:30 P. M.—Observations upon the Intelligence of Bees. Anatomy of Bees, by Prof. A. J. Cook. Question-Box.

7:30 P. M.—How to Improve our Bees, by T. F. Bingham. Marketing Honey, by John Rey. Reports of Committees.

I expect to be on hand at the opening of the Horticultural Convention on Tuesday morning, Dec. 6.

ANNA QUILLIN.

THY WILL, NOT MINE, BE DONE.

ANNA QUILLIN! Is not that a beautiful name? It seems to me that some people have just the right name; that, if their parents had happened to give them any other name it would never have fitted them at all. Anna Quillin is a dear friend of mine, who is greatly interested in GLEANINGS and its editor. She has been reading it more or less for years, and likes the religious talks very much. Anna was a very bright girl, a good musician, a graduate of the Chicago Music School, and a successful music teacher. She is a minister's daughter, and looked forward to a long life of usefulness; but eight or

ten years ago she fell down stairs and injured her spine, and has been a confirmed invalid ever since. She lies in bed all the time, never getting out without being lifted, and her days and nights are full of pain. She has throat troubles that injure her vocal organs so that she can speak only in whispers for months at a time. But in all these trials she is bright, cheerful, and happy. She says it is because she is a Christian. Well, people who lie in bed all day, one day after another, for years, get tired of being idle; they even get tired of reading; so, a good many years ago Anna began to look about for something to do. Crochet-work seemed to suit her best, as it was light to hold, and she could lay it down at any time without dropping stitches. She knits beautiful laces, collars, babies' sacques, tidies, and all the other fancy things that women and children like so well. Then about two years ago she took it into her head to make a collection of bugs and butterflies. Of course, she could run after nothing; but she had the command of 13 pairs of legs, ready and willing to run at her bidding. She has now as fine a collection as there is to be seen anywhere outside of a museum. They are beautifully arranged in those little drawers that "Coates' thread" used to come in, and she knows all about her specimens, and can talk knowingly about them for days at a time. In addition to her bugs and butterflies she has a great many shells, stones, and Indian relics gathered from all parts of the country.

The way she gets most of these curiosities is this: Some paper that she takes, I forget its name, has an exchange department, and she writes to the advertisers and offers her crochet-work for all the different things that she wants. When I was there last year she had a horned toad, fresh from Texas, that some little boy had sent her; Indian moccasins from Dakota, and numerous sea-shells from the ocean. I wrote to Mr. Hart about her, and he sent her a fine collection of sea-shells, sea-beans, sharks' eggs, sea-moss, and others too numerous to mention. These she keeps in a separate box, and it constitutes her "Florida collection." For years she has been promising me that she would write something for GLEANINGS, but she still puts it off, so I have written this, thinking it would perhaps lead her to say something for herself.

Vermont, Ill.

MAHALA B. CHADDOCK.

Why, my good friend Mrs. C., you have hunted up one of those consecrated lives that we sometimes read about, but that we seldom see around our own homes. Why do you say that *she* says it is because she is a Christian? That is, why do *you* not say instead, it is because she is a Christian? How can anybody help coming to the conclusion that, if this patient spirit under great trials and afflictions is the fruit of Christianity, we need to have the more of it? I am very glad you have given us this little pen-picture of such a consecrated life; but such accounts almost frighten me sometimes. Do you know why? It is because I am afraid I shall not have grace to be as patient and Christ-like when I am called on to bear like afflictions. Tell our good friend Anna Quillin that, whether she ever gets time to write for GLEANINGS or not, I shall remember her and pray for her; and I also pray that her example may be the means of leading others to follow Christ.

OUR P. BENSON LETTER.

Lines of a Batchiller requesting a wife.

By P. BENSON, A. B. S.

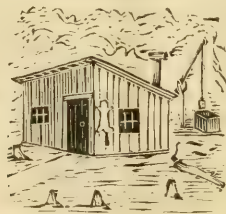
O lady fare
With obburn hare,
To thee I rite
This verry nite.

I want a wife
Oll free frum strife
To share my home
No more to rome.

For thee I si
With tear-dood i,
O cum with me
When this you see.

To you I neel
With gratest zeal,
And sitch affexion feel
As time can onaly heel.

Behold my pallace home,
Whare you shall be the queen,
If over all the world you rome,
A finer wun can not be seen.



"BEHOLD MY PALLACE HOME."

I need a helpful frend
My bees and things to tend.
Our life shall camly glide away
Like ice upon a summer's day.

I'll wood & watter neatly carry
Whenever you agree to marry,
And you can sweetly cook my mutton,
And sometimes fondly so a button.

With jooels rare
Ile deck yure hare,
Allso a pare
Of earrings fare
With you Ile share.

(I wood here explaine that the intension is to let you ware boath earrings, but the wurd "share" had to cum in to make it rime rite.)

Yure hare's so slick
Yure cheeks so red,
Ime almost sick
For you to wed.

So lady fare
With obburn hare,
Just cum ahed
If you will wed,
Our bark shall sale
Thru life's ruff gale
On camnest seas
With perfect eas.

P. BENSON, A. B. S.

FOUL BROOD.

THE THEORY OF IT IN GERMANY.

ERNEST R. ROOT:—With great interest I read how you worked to overcome foul brood. I wrote an article for the *American Apiculturist*, 1885, on the subject of foul brood, where I gave an approved method of cure. But this found little attention. Well, last winter I expected you would find foul brood again in the spring, 1887, because your cure was in no way a *sure* one, and so it happened. I was many times willing to write to you to give my meaning, but you and your father talked so severely against any drug to be used in the apiary that I was afraid you would not believe me. You now use carbolic acid to spray the colony, hive, etc., and describe the further *modus operandi* in GLEANINGS, Oct. 1. With all your care, I am afraid you will find foul brood again next spring. I will tell you why. The bacillus *alvei* was first discovered by Schonfeld, in Germany, long before Cheshire, and this man experimented very much with the disease. The whole question is in Germany a settled matter, and so is the cure. The germs of the bacillus you can find everywhere in an infected hive, in the brood, in the honey, and outside, adhering to the bees, frames, combs, and hive. By spraying with carbolic acid, sometimes in intervals, as you do, you can kill this bacillus and the germs, and so the foul brood seems to be cured; but your microscope will show you that the bacillus and its germs are inside of the living bees of an infected hive too. You will find them, at least in the two stomachs.

In the inner stomach is prepared the royal jelly for the young larvæ, and so comes the germ again in the young larva; it grows here, and kills them when capped, and in a short time you will find the disease again when the germs become plentiful enough.

You can not kill these germs inside of the bees by starvation. The only way to do this is by feeding any antiseptic, which kills the germs but not the bees and larvæ. Your cure will be a success if you combine it with feeding disinfected honey or sugar-water. Which drug is best to be used for feeding, has to be found out by experiment. You can give salicylic acid and carbolic acid in very small quantities, say for a quart of honey-water 50 drops, $\frac{1}{10}$ solution. This will in no way hurt the bees or larvæ. Hydrargyrum bichloratum is lately recommended. This inside cure is as important as the outside cure, and here is the point why our English friends sometimes fail to cure foul brood by using salicylic acid, or phenol. Carbolic acid, pure or common, is preferable for outside cure, because it evaporates and finds its way everywhere in the hive, killing the germs of foul brood except inside of the living bees. If you rub the bottom-board with carbolic-acid solution, say once or twice a week, it will do for the prevention of the spreading of the disease in an infected apiary.

You further say, "It is not certain that the bacillus *alvei* is the cause of the disease." Schonfeld made many experiments for this purpose. You say Mr. Sargent will get the foul-brood germs growing on gelatine. He will do better if he mixes the liquid with the soap of healthy bee-larvæ. This is the very ground for the bacillus *alvei*. The so grown bacilli you can see in the microscope moving, and every thing is lively, like a skating-

rink. Then give some salicylic or carbolic acid in the mixture, and look through the microscope, and every thing is dead, like an ice-field. These artificially raised bacilli, or the germs planted on the brood of a healthy colony, will raise foul brood in proper form. All this, and more, has been known in Germany for some years, and a careful man can experiment with foul brood without any danger of spreading it. Further, many times I observed a disease like foul brood; in fact, the capped brood dies in the same way, and it is not possible to detect any difference between this disease and the real foul brood, except by a good microscope, which will show the bacillus, or the germ, when real foul brood is in question, and not if the other disease is before us. Many times you will find more killed brood and more hives infected—sometimes all the hives of an apiary quite suddenly; nevertheless it is called the milder form of foul brood. This disease cures itself by and by. Many times it is some honey injurious to the bees or larvæ, which is the cause of this disease. Extracting all the honey, and feeding good sugar, is here the usual cure.

I believe that many reports of curing foul brood by starvation have nothing to do with real foul brood at all. If the bacillus theory is correct, and I believe it is, the starvation plan can not cure the real foul brood, and your experience shows this again; but it is possible that, by this plan, often repeated, and by help of a good honey-harvest, the bees may be able to overcome, *sometimes*, the disease by the help of their sting-poison, which is, without doubt, a good antiseptic. In this way Dzierzon cured foul brood about 40 years ago by enormous labor, during some years, and the loss of more than half of his colonies. We are better off now; but we have to use what other men found out.

I do not know whether these few lines will help you or not; but I think it is my duty to write to you. May be I did wrong not to write earlier.

L. STACHELHAUSEN.

Selma, Bexar Co., Texas, Oct. 20, 1887.

Accept my thanks, friend S., for your kind suggestions. The more I see written in regard to foul brood, the more thoroughly I am impressed that it is indeed a deep subject. You say that the germs of the bacillus can be found everywhere in an infected hive—in the brood and in the *honey*. I believe we have never had any doubt as to the existence of these germs in the places you mention, but I was not aware that any one had actually discovered them in honey. Neither Mr. Cheshire nor Mr. Cowan has succeeded in finding them there. There is no question but there is something that does exist in honey, and which does make a vast amount of trouble. Again, you say that we can not kill these germs inside the bees by starvation, and that the only way to do this is to feed an antiseptic. This does seem to be reasonable; but at the same time all colonies treated by the starvation plan in our apiary have never yet shown even the slightest trace of a reappearance of the disease, and we have treated something like 50 colonies by that plan. I believe Mr. Jones has had experience quite similar to it.—Mr. Sargent did succeed in growing what appeared to be bacillus, in beef gelatine. He

also made use of the soap of the diseased larvæ, mixing the same in a small quantity with the beef gelatine. In a few days the test-tube became cloudy. From last reports he was not certain that this cloudiness in the test-tube was foul brood, although the bacillus as seen in the microscope resembled, as I now remember it, quite closely the bacillus I saw in Mr. Cowan's microscope. You say that the bacilli move around under the field of the microscope, and that every thing is lively, much like a skating-rink. As I witnessed them, both mounted and from fresh specimens of diseased larvæ, they looked like miniature walking-sticks, and every thing was quiet. From the last I heard from Mr. Sargent, he reported that the carbolic acid *apparently* had no effect upon the cloudy appearance, as seen in the beef gelatine in the test-tubes. As he is not at all certain that this cloudiness is the bacillus, neither he nor myself consider it proof that carbolic acid is not a destroyer of foul brood. I am satisfied, however, that the acid is an antiseptic.

A BIOGRAPHICAL SKETCH OF D. A. JONES.

BY THE REV. WM. F. CLARKE.

I TAKE much pleasure in writing a brief biographical sketch of our Canadian "Bee King," to accompany the engraving, a proof-print of which is now before me. A picture of Mr. Jones appeared on page 187 of GLEANINGS for 1884; but while it would be recognized by any one who knows the man as like him, the resemblance was rather distant, and it was especially defective in expression. The wood-cut now produced is a very great improvement on the former one, and does much credit to the artists who have been employed on it. It is one of the best I have ever seen, and is, perhaps, as nearly perfect as human skill can make a picture of that kind. It excels precisely where the other failed, and gives a most life-like representation of the original when the countenance is in thoughtful repose. There is another expression characteristic of Mr. Jones which I suppose can not be given in a picture. It is a peculiarly good-natured and even merry twinkle of the eyes, which you notice in his happy moods, and most of his moods are happy ones. He does not borrow trouble. On the other hand, he is a large borrower of enjoyment, and discounts the future heavily, with an indorsement of hope written large. In the engraving now to be published, the eyes appear to be lying in ambush for something cheerful or funny, and are evidently ready for the merry twinkle which can be shown only by the living countenance itself.

Mr. Jones is a Canadian by birth; the county of York, of which Toronto is the county-town, being his native place. His great-grandfather, Abel Jones, was a native of the State of Rhode Island, and married Ruth Greene, the daughter of a Quaker preacher, and a near relative of Brigadier-General Greene, famous in connection with the American Revolution. The dash of Quaker blood in his ancestral pedigree accounts for some of his peculiar characteristics; and his love of bees and taste for bee-keeping may be traced to a like

source, for his great-grandfather aforesaid, after his removal from Rhode Island to Petersburg, in the State of New York, became an extensive bee-farmer, and was thoroughly possessed with the ideas of his time about these little insects, believing that he could converse with them, that they understood him, and that they took an interest in family matters of importance. It speaks well for the healthfulness of bee-keeping, that Abel Jones lived to be past ninety-four, and cared for his bees until within a few weeks of his death. During his last sickness his bees dwindled, and at last became extinct; but this was probably for want of the attention they had been accustomed to receive, rather than sympathy with the declining energies of their owner.

Mr. Jones's father had also a great liking for bees, but the moth proved too many for him. There were no Italian bees in those days to fight this pest, and the moth-traps then in vogue were helps rather than hindrances to the ravages of this marauder.



OUR FRIEND D. A. JONES, OF THE CANADIAN BEE JOURNAL.

The subject of this sketch was born Oct. 9, 1836, and remained on the farm with his father until he became of age, when he launched out for himself. For some time he was variously engaged—five years with a stockman in Illinois, where he contracted a severe fever, on his recovery from which he engaged in a book agency, and afterward in the sale of fruit-trees. In this last-named employment he was moderately successful; and, having acquired a little capital, he embarked in matrimony and mercantile business. The two worked together very well; for while he officiated behind the counter, Mrs. J. ran a millinery establishment. This matrimonial and commercial partnership was established in Beeton, Ontario, where the happy couple have resided ever since, and now enjoy the fruits of their early labors in the possession of a comfortable home, where peace, plenty, and a bountiful hospitality may always be found.

Soon after opening a general store, Mr. Jones be-

gan to invest and deal in real estate, and ultimately sold out his business, and for a time devoted himself to the development and improvement of the village. In this he was prospered, so that, before long, he saw his way to the erection of a store three times the size of his former one, with a residence attached. While comparatively at leisure during the interval that he was out of store-keeping, he bought a couple of colonies of bees in Langstroth hives, which revived his youthful and inherited interest in bee-keeping. Meantime he resumed mercantile business; both apiary and store flourished; and Mr. Jones, like his father before him, fought the bee-moth, but with more perseverance and better success. Like most beginners in bee-keeping he had to invent a hive, which was duly patented, July 15, 1870, and was called "The Jones Perfection bee-hive." It was double-walled, with an ingenious complication of tin and glass inside, specially contrived to checkmate the moth, of which he had received, by tradition from his forefathers, a wholesome dread. These complications in due time disappeared; and their inventor, like many more, became quite content to try his luck with a simple hive, constructed after the Langstroth model.

While inventing, experimenting, and making known the supposed merits of his patent hive, he fell in with Mr. J. H. Thomas, then of Brookline, Ontario, who may justly be regarded as the father of improved bee-keeping in Canada. He wrote largely for the bee-department of the *Canada Farmer*, then under the editorship of the writer of this sketch; exhibited bees, honey, and apiarian requisites at fairs, and was, by all odds, the foremost bee-man in our country. A little hand-book entitled, "The Canadian Bee-keeper's Guide," selling for 25 cents, of which he was author, did much to spread a knowledge of improved bee-keeping throughout the Dominion. Mr. Jones was not slow to recognize in Mr. Thomas one who could impart valuable information on what was now becoming to him a favorite pursuit, and he improved the opportunity presented. From Mr. Thomas he first heard of the honey-extractor, also of the *American Bee Journal*, and other publications concerning apiculture.* His progress now was rapid. A good location and favorable seasons enabled him, by the use of the extractor, to obtain marvelous quantities of honey, and bee-keeping soon became his absorbing pursuit. Again he retired from store-keeping, and now set himself to extend and multiply his apiaries. In 1878 he commenced, in a small way, the manufacture of bee-keepers' supplies, which has now grown to be an extensive business, employing a large number of hands.

In 1879-'80, acting on the determination to find out whether there was any better bee in the world than the Italian, he went to Cyprus and Palestine, incurring enormous expense, and braving many dangers and exposures. This tour led to the establishment of a queen-breeding station at Larnaca, in the island of Cyprus, of which Mr. Frank Benton was in charge for some time. It also led to the establishment of queen-breeding Italians on several islands in the Georgian Bay, Ontario, about 100 miles north from Beeton, where, for several years, Mr. Jones carried on costly experiments in order to obtain the best bee available for honey produc-

tion. By these enterprising schemes, carried out with wonderful energy, regardless of expense, Mr. Jones has laid the bee-keepers of this continent and of the world under a weighty obligation. They have not been money-making schemes to him. He would have been many thousand dollars richer had he let them alone. But the work needed to be done by some one. Government would not undertake it, and the task fell to an enterprising, public spirited man, who did it thoroughly, and the apicultural world enjoys the benefit of his labors. The question as to the best races of bees has been probed to the bottom, and practically settled.

Mr. Jones was the chief if not the sole means of getting up the grand exhibit of honey and supplies which is now annually made in Toronto, and forms such a conspicuous and attractive feature in "Canada's Greatest Fair." He was also largely instrumental in bringing about the display of Canadian honey which was made on such a magnificent scale at the Colonial and Indian Exhibition held in London, England, last year, and was himself one of the commissioners, four in number, who took charge of the exhibit, and conducted it to such a successful issue.

In April, 1885, in company with a nephew of Mrs. Jones, Mr. F. A. Macpherson, he commenced the *Canadian Bee Journal*, himself taking the position of senior editor, and his associate acting as publisher and assistant editor. It was a bold venture, especially as it was issued at the low figure of one dollar per annum, which, for a weekly magazine, with a tinted cover, was a phenomenon in apicultural literature. It has had a phenomenal success, notwithstanding the number of ably conducted bee-journals already in the field. Much of this success is to be attributed to Mr. Macpherson, who is not only a thorough practical printer, but possesses literary ability of a high order, and is full of youthful fire and energy. The *Canadian Bee Journal* not only fitly represents the bee-interests of the Dominion, but has a large circulation in the United States, and a considerable patronage among the more intelligent bee-keepers of the Old World.

Mr. Jones is a versatile and many-sided man, a good citizen, broad and liberal in his views, public-spirited, and ready to take part in any movement calculated to benefit humanity. He has been for many years, and is still, the leading spirit in every thing calculated to advance the material and moral interests of the community and district of country in which he resides.

Beeton is now an important railroad point. It is not only a considerable station on the Hamilton & Northwestern R. R., which Mr. Jones was the chief means of locating on the route finally adopted, but it is a junction, whence lines to Toronto and points east and south connect; also a road to Barrie north, connecting with the Canadian Pacific, and so with the Lake Superior region, Manitoba, and the Northwest. He is reputed to have made some money out of these railroad enterprises, and well deserves to have done so, for he has worked hard in securing their development. Mr. Jones is postmaster in Beeton, and proprietor of the *Beeton World*. As yet he does not seem to have been smitten with political ambition, and it is to be hoped he will not be, as there are plenty of politicians who can not do the work he has done and is capable of doing in the promotion of bee-keeping, which is worth far more to the national welfare than most

*By the way, who can tell what has become of J. H. Thomas?—Ed.

of the schemes undertaken by those who give their time and energies to party politics. Best of all, Mr. Jones has recently enrolled himself as a subject of that kingdom which is "not of this world;" and devoting his great abilities and wonderful energy to the promotion of its beneficent purposes, he may, if he will, verify the motto of his bee-journal, "the greatest possible good to the greatest possible number," in ways that will make him a blessing to generations yet unborn. "So mote it be!"

WM. F. CLARKE.

Guelph, Ont., Can., Nov. 10, 1887.

Friend Clarke, your excellent sketch is intensely interesting to myself, if not to our readers, especially where it takes up the time when friend Jones began to scrape acquaintance with the bee-journals and bee-keepers of the United States. His inventive turn of mind was shown in his automatic swarmer, pictured in a diagram back in 1875. About that time we used to get quite a few communications from Mr. Jones; but pretty soon he became so full of railroads, stores, large apiaries, and foreign travel, that we had to content ourselves with getting reports of him from his neighbors, or whoever took a notion to send us items. After his visit here we knew him a great deal better; and one needs to know friend Jones to understand him. Truly is our friend a "versatile and many-sided man," as you say; and until one gets thoroughly acquainted with him, he might find a good many things to pick at and find fault with. He not only takes sudden starts in new directions, but he often apparently forgets what he has said the day before or the year before, and in a reckless sort of way makes off-hand statements. None but his intimate friends really know how good a man he is at heart, and how sincerely he is devoted to the best interests of the great world at large. If he for the time neglects single individuals, you may be pretty sure it is because the good of great multitudes demands that he should for the time ignore things that are in truth only trifles compared to the thing his heart and soul are absorbed in. When his work on this earth is done, it may be truly said of him, "He loved his fellow-man."

MR. COWAN.

THE GENTRY OF ENGLAND.

DEAR UNCLE AMOS:—You remind me of a greater Amos, who said he was "no prophet, nor the son of a prophet, but a herdman, and a gatherer of wild figs (see margin); and the Lord took him as he followed the flock, and said unto him, Go prophesy." I do not mean to tell you that you foretell future events, but take rather the New-Testament idea of a prophet; i. e., a teacher, for I must say I do think God has sent you to teach.

Well, I want to tell you I like GLEANINGS; first, because I am a bee-keeper; but more than all, because you are neither afraid nor ashamed to carry Christ—I will not say religion—into all your daily employments. To attempt to do this for the sake of temporal gain, or to increase your credit for honest dealing, is, to my mind, the worst of all hypocri-

sy; but to do so to glorify our Master and Lord is what, above all things, this busy world requires at the present day.

You will say, "Who and what are you to talk to me in this fashion?" I am many years your junior; but that you may judge how far I can appreciate you sentiments I will tell you that I never smoked, nor drank intoxicants in my life. I have endeavored to serve Christ for 20 years; and during all that time I have taken a lively interest in Sunday-school work, and have many times stood at street-corners preaching to those who would not come into a building to listen. That is all I want to tell you about myself, as I sat down to write about the visit of our Mr. Cowan to Canada and the States. I am glad he has been, and so are all British bee-keepers. You know us better for having seen him, and we know you all the better because of what he has told us about you all. I have read what you and the other bee-keepers have to say about him, and I confess it has amused me a little. Fancy him coming home to us dubbed as a doctor or professor! I am almost sorry he did not accept the honor (?), as the joke would have been almost too good. Then you are all agreed that he is modest. We consider him a good specimen of a dignified English gentleman. It is not necessary to bounce, brag, or go about with an undue amount of self-assertion if you have knowledge, as you are certain to be recognized if you go on your way and "let your light shine!" Mr. Cowan is no exception. Then, again, as to wealth, we do not measure it by the amount of "dash" people cut. A countess just drove by, the wife of one of the greatest lords in England. She is a fine woman, with the dignity of an empress, but her pony and chaise is not half so dashing as some upstarts with £500 per annum salary. Mr. Cowan is a country gentleman. He has a nice little mansion down at Horsham, in Sussex; he is compelled to live in Switzerland, for Mrs. Cowan's health; but the people who live on his farms, cottages, gardens, smithy, etc., have not forgotten the kindly relationships that always existed between him and them when he lived in their midst. Do you know how a country gentleman lives in England, and how he gets his income year by year? Perhaps some of your readers do not, so you will spare me room to tell them.

In the first place, they have sufficient money to be able to live on the interest, and they, as a rule, do not seek to increase the capital. They own a certain amount of land, more or less. On it there will be a mansion surrounded with a park; that next the house is laid out as a pleasure-ground and flower-garden, and is planted with shrubs and evergreens from all climates. The parks are studded with grand old trees that no money would induce them to fell. I saw a tree the other day blown up by a gale. It was in a nobleman's park. It was worth about £4 as timber; but the owner would have given £500 to have been able to put it back as an ornament. Outside the parks are the farms, cottages, gardens, villages, etc. As a rule, the rent-roll of these places produces from 2 to 4 per cent per annum only, seldom more; consequently land is more or less a luxury. A certain part of a gentleman's capital would be in the public funds, and brings in only 3 or 3½ per cent; the remainder would be in rails, trains, water and gas, mines, telegraphs, home and foreign, and so they get a certain income; as, if one thing fails, the others do not,

and that is why they usually put their eggs in many baskets, and so there are thousands in England who thus live on their means and have time and talents to give for the amelioration of our race and not in gay frivolity. The amount of labor they hire is no criterion of their wealth. They may keep from 8 to 12 maid-servants, and one or two men indoors, horses and carriages, and a man or two in the stables to look after them. The men wear livery, as you doubtless are aware. To be servant to such is considered equal to being a day mechanic, or better. There would be two or three gardeners, one or two more to look after the cows and the horses, for doing the rough work, and a few men to do odd jobs about the park. This class of people have no business, trade, or profession. How do they spend their time, say you? Some are magistrates, "the great unpaid," we call them; they do the business of their county, and pay their own traveling expenses. They shoot and fish on their estates, and that is why game is preserved. Most of them have what is called "hobbies." Some hunt foxes, stags, and hares; some are officers of volunteer regiments, other are poor-law guardians, members of local boards of health; others, again, take to science, photography, the microscope, geology, botany, natural history, and kindred subjects. Some take to politics. It is from this class that the larger number of our members of parliament are taken. They, too, are unpaid, and moreover pay their own election expenses. To rank as an English gentleman is to prefer death to dishonor. Black sheep we have, alas! too many; but they are always lepers among their fellows, and are kept in the lepers' place, and no mere wealth will admit them back into the status they have forfeited.

The best feature about our gentry is, they are always interested in their poorer neighbors, who live under the shadow of their great houses; so they are large supporters of poultry, fruit, flower, vegetable, and honey shows, hoping thereby to interest the poorer classes to keep these things, and so make their lives less monotonous. The British Bee-Keepers' Association is a good illustration of this. We spend £1000 a year, or thereabouts, to promote bee-keeping, and I do not suppose 20 of its members are a brass farthing in pocket by keeping bees. It is all patriotic. The county associations are rather different, as its members do, as a rule, keep bees for gain; but the managers of even these all give their time and trouble for the "love of it."

The clergy of the church of England are mostly drawn from this class. Their income is the tithe; but hundreds of them spend three times more than their tithe among their parishioners. To those who, having the means, rightly realize their duty to the poor whom God has placed them among, there is always a pleasure in helping to make their lives more enjoyable; and this always tends to a nice feeling among all classes.

You will not be surprised to hear, and I am sure you will be pleased to learn, that this feeling exists between Mr. and Mrs. Cowan and their tenants and neighbors. When they went down to Horsham, after landing to look at it before they started for Switzerland, there was a triumphant arch of beehives, evergreens, and flowers, awaiting them, and the words, "Welcome home!" I live far from there, so I did not see it; but I helped to welcome him home to his "chair" among bee-keepers, and was pleased to see him looking so well. His words to

me were—spoken softly—"It is nice to return home and feel we have been preserved from all danger while traveling 10,000 miles." Smooth waters run deep; the few words were volumes to me.

Well, friend Root, this is not bee-keeping, but it is among "home interests," I think. What I have said about the gentry is true of the nobility, in a larger degree. Their lands and establishments are proportionately greater.

I wish you better health, but no better employment, than to make some, at least, of your fellow-men happier. You know the reward of those "who by patient continuance in well doing," etc. I shall not put my name to this, as I do not wish Mr. Cowan to know who has been writing about him from this side, so I will style myself a—

Eng., Nov. 1, 1887.

BRITISH BEE-KEEPER.

My good friend, we are indebted to you for your kind letter, and for this explanation of the ways and habits of many of our friends across the water, about which many of us have known but little. I presume you know that we Americans have been in the habit of criticising a little this very thing in regard to the class of people in England who do not work, in the common acceptance of the term. Now, perhaps the only obstacle toward getting on to a common ground in this matter is the fact that *birth* fixes the standing in your country, while in ours it has little to do with it. You drop one word, however, that I feel like grasping hold of with much hopefulness. You say you have black sheep, and that these black sheep can never regain their standing by money alone. Thank God for that. Now, then, if a man by bad conduct loses his standing among his fellows, the reverse must certainly be true: That even a poor humble laborer can, by good conduct, win a place among the highest. Of course, he would need some money, to stand among gentlemen; but good conduct very often, though perhaps not always, in time brings wealth—perhaps all the wealth that it is good for a Christian man to have. And now, my good friend, am I right in saying that it is possible for even a commonplace laborer to work his way to a position where even the gentry and nobility will be proud to have him stand by their side? If so, then England and America are side by side in the great work of the present day climbing from earth to heaven.

THE CONSIDERATION OF IMPORTANT ISSUES.

E. FRANCE ON UNITING OTHER BUSINESS WITH BEE-KEEPING.

I HAVE eleven acres of land just inside the city limits of Platteville. The population is about 4000. We are about three-fourths of a mile from the business part of town. When I came on the place, about 18 years ago, I had but few bees. At this time I went to raising garden truck for our city market, and sold sewing-machines. In the winter I worked at trapping, and for several years I hunted for young wolves about 40 days each spring. I tried the small-fruit business considerably during the time. I raised grapes, strawberries, raspberries, blackberries, etc. All of these pursuits

have helped me to get along while working into the bee-business. Now, I believe that every bee-keeper can have part of his time during the year, to work at something besides the bees and selling honey. But just what that something is, depends upon how a man is situated. But this year has proved that we must have something besides the bees to depend on for our bread and butter. Some locations will furnish one line of work, while another location will furnish something else; and it is not everybody that will or can take hold of the same thing and make a success of it. Every one must say for himself what there is within his reach to do, that will pay, so that he may fill up his spare time and make a part of a living, at least, out of something besides the bees.

I can not say what another could or should do; but as for myself I can not do the same things I did do ten or fifteen years ago. For instance, I could not sell sewing-machines now, for the reason that my eyesight is dim with age; and by reason of age I have quit hunting. For our market I could not make it pay to raise garden vegetables. At first it paid well; but others, seeing my success, went at it and broke down the market. The same was true with grapes. Others raised them cheaper than I could, and sold from 2½ to 4 cents per lb., so I quit the grape-business. As to raspberries and strawberries, the picking and marketing comes just at a time when we are doing our extracting. Besides, others have gone heavily into the business; so two years ago I plowed up my last half-acre of strawberries, except a small patch for home use, and we have now only about half an acre of raspberries left, and I don't think we shall pick them more than one year more. We are, however, planting out more blackberries. We find the spring work with them is all done before the bee-work comes on. Then the harvesting comes on after we are done with the bees, so we have plenty of time to pick and sell the fruit. In this latitude we have to lay down the bushes in the fall, and cover them up with dirt, to winter them. That is a rough job, but we have to do it to be sure of a crop. Then we have to ship the fruit to other markets, as there are so many in the blackberry-business here that our town can not use over a fifth of them. How long it will pay to raise blackberries to ship, we don't know. When that gives out we must try something else. My son has taught school winters for several years. Last year we had a big crop of honey. Then he said he had taught his last term; but getting so little honey this year, he has a contract to run another term of school, this coming winter.

HOW TO MAKE ANY RACE OF BEES PRACTICALLY NON-SWARMING.

Now, I should like to say a few words about question No. 12 in "Our Question-Box." "Is it possible to breed a non-swarming race of bees?" I don't believe it is desirable to have a non-swarming race. If we did have them it would be because they did not raise enough bees to swarm. We all want to have our bees strong, queens prolific, so as to have a host of bees at the commencement of the honey-harvest, for it is bees that gather the honey. For my part I would rather have a very strong colony at that time than to have a weak one that would not have bees enough to swarm. But, say that, at the commencement of a good honey-flow, we have all our bees extra strong, can we prevent their swarming? That is the question with me; and

can we make them more profitable by keeping them from swarming than they would be if they swarmed? I know it is difficult to work bees for comb honey, and keep them strong and not swarm. When the bees are run for extracted honey in a good honey season, give them all the room that the queen can keep full of bees, and empty combs to fill the space, then there will be no swarming, as a rule. Bees will fill a salt-barrel, and swarm out of it; but that is as large a space as they can fill and swarm. I have now standing in my home yard three quadruple hives, each containing four colonies of bees, making twelve colonies. They have been in those hives two years. Out of the twelve colonies there has been but one swarm in the two years, and that went back and stayed there. The twelve have wintered outdoors on their summer stands, without a loss, the last two winters. They are the most profitable bees that I have got. The hive is 13½×13½ inches, and 43 inches high, using two sets of frames 21¼ inches high, 9 frames in each set. The upper set stands on the top of the lower set of frames, with nothing between them, making a continuous hive 43 inches deep. I work them for extracted honey. Those bees are no trouble to me whatever, only to throw out the honey when they have it to spare. Besides those 12 colonies, I have about 40 colonies in quadruple 8-frame L. hives, which I have worked three tier high, making 24 L. frames. I have had them in use now for two years, and part of them three years. When they are worked three tier high with the extractor, they don't swarm. Now, if those bees were kept as they are, and not a swarm come off for 20 years or more, would they be any nearer a non-swarming race than they were at the start? No, I think not. Put them on just one set of frames, and they would swarm the first year, just like any other bees. Then why do bees swarm? Simply because the queen has no empty combs in which to deposit her eggs. If we don't want swarms, give the queen room—empty combs, not space filled up with foundation, but good finished combs in which the queen can place her eggs, then she will be satisfied to remain where she is, and the workers will be satisfied also, as it is just as natural for the workers to be nursing young larval bees as it is for the queen to lay the eggs.

HOW MANY L. FRAMES ARE REQUIRED TO KEEP A PROLIFIC QUEEN IN BREEDING-ROOM?

Some say eight frames are enough. I don't think so. It may do for some queens, but not for all. Some queens will fill 12 frames. With me, in working the L. hives three stories high, it is nothing uncommon to find brood in all the three stories—the lower story full of brood, the second story about half brood and half honey, the third story more or less brood in three or four combs. Now put that queen on eight brood-frames, and keep her there. That colony will swarm, sure. It is so natural for bees to swarm that I don't think it possible to produce a non-swarming race of bees; but I am sure that we can manage the bees in a manner to prevent swarming. Either have a hive roomy enough to prevent swarming, or work the bees in such a way that they can not swarm. When you have a big working force, take away the queen. E. FRANCE.

Platteville, Wis., Oct. 25, 1887.

Friend F., as you put it, it seems that the bee-keeper had better occupy his spare time in doing that which is most to his liking.

If he gets crazy on strawberries, and continues to like the business, he will doubtless succeed with it; and he may eventually drop the bees, and attend to strawberries altogether, especially as the one is apt to conflict somewhat with the other, in harvesting the crop. I presume that circumstances have much to do in one's taking a fancy to any business. If his own town is poorly supplied with strawberries, and he discovers that he is eminently fitted for raising them, it would not be strange if these things should help to make it attractive, for there are few things so encouraging as a good price for the product, that covers cost, and quite a little more.—In regard to a race of non-swarming bees, we would go about it in this way, or something like it: If you have a colony in your apiary that has never swarmed, even when enormously strong and storing comb honey, this is the colony to raise queens from. Among the young queens thus raised, you will probably have one or more queens whose workers, like the parent hive, produce large crops of comb honey, without any attempt at swarming. Select the best, with this feature in view, and raise queens from that stock, and I feel pretty sure we shall pretty soon have non-swarming bees just like our non-sitting breeds of poultry; and we shall have to perpetuate them by raising queens just as we perpetuate our non-sitting fowls, by having other breeds hatch their eggs.

THAT COLONY IN A SIX-STORY HIVE.

DR. MILLER GIVES US SOME INTERESTING DETAILS.

YOU express a wish, on page 768, to know, friend Root, how the colony wintered that had been in the six-story hive. I am sorry to say I can not tell. There were two colonies in much the same condition, one of which died, but I am not sure which one. The dead colony had plenty of empty combs, so they did not die because crowded on combs full of honey. Indeed, if I am not mistaken the lower story of the six had, all the while, plenty of empty combs, so the bees did not spread through the upper stories for lack of empty combs in the lower story, but apparently because they desired to fill first the empty cells of the upper story, and then successively to fill all the other stories before occupying the first. If this case points to the belief that full combs are not the best for bees to cluster on, here is something that points the other way. This fall my bees were destitute of stores, and were fed with sugar syrup, the feeding being done after the brood was all, or nearly all, hatched out. (I have always supposed that such late feeding was bad, but that is not to the point here.) Lifting the quilt after a colony had been fed 20 lbs., I found the combs looking empty—that is, the cells in sight were empty; and lifting out the combs, the stores seemed to be in the cluster, and the empty cells outside. I noticed no case in which the bees filled the outside cells, leaving a vacant center. Does this mean that it is best for the bees to have their stores for winter in the cluster?

You ask as to the quality of the honey in the six-story colony. I am not sure that I can tell you about that particular case, for the combs of honey

were given to the bees; but I never knew honey left a long time in care of a strong colony to be other than good. A more distinctly marked case I can, however, tell you about. In the summer of 1886 a small colony was in a ten-frame hive, the colony having, I think, four frames closed in by a division-board, the remaining part of the hive being empty. Being left to itself, this colony increased in strength unexpectedly; and when looked at, the bees had made good progress in filling with combs (pretty crooked, of course) the empty part of the hive. (Now, Bro. Root, I know you will say I ought to keep fewer colonies, and take better care of them, and I am beginning to feel a little that way myself.) The whole affair was left untouched; the hive, heavy with honey, was put in the cellar, taken in the spring to the Belden apiary, and not till some time in late May or June was the colony taken from this hive, and the hive with its crooked combs of honey brought home. Thinking it would do to feed in the fall, it was left standing in the house till some time in September, and then upon cutting it out it was found very thick, clear, not candied, and of exquisite flavor, unsurpassed by any thing I had ever tasted. Part of it was white and part buckwheat, and the buckwheat seemed improved the most, quite unlike any buckwheat I had ever tasted. Here was honey left in charge of the bees nearly a year, and wintered over in the cellar. Might not a cellar be so managed as to successfully winter section honey?

NUMBER OF CELLS TO THE SQUARE INCH.

It is common to speak of combs containing 25 worker-cells to the square inch, and 16 drone-cells. Ought we to speak so loosely? My attention was first called to it in Frank Cheshire's book, where he gives $28\frac{1}{2}$ as the number of worker-cells to the square inch, and $18\frac{1}{2}$ drone-cells. If the cells were square, 25 and 16 would be correct; but they are hexagons.

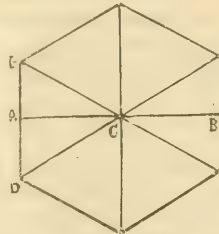


DIAGRAM TO SHOW EXACTLY THE NUMBER OF WORKER-CELLS PER SQUARE INCH.

Any one curious in the matter can easily solve it by algebra, or even by arithmetic. In the figure of a hexagon here given, having the diameter ab we have 6 equal equilateral triangles. Bisecting one of them gives us the right-angled triangle acd , with the hypotenuse cd . If ad is 1, cd is 2, and ac is found by taking the square root of the difference of the squares of ad and cd . The squares of ad and cd are 1 and 4, their difference 3. The square root of 3 is 1.73205, the measure of ac . But in a worker-cell the diameter is $\frac{1}{2}$ of an inch; and half the diameter, or the line ac , $\frac{1}{4}$ of an inch. To reduce ad to the same scale, we find by proportion that 1.73205 is to .1 as 1 is to .057735, the true measure of ad in a worker-cell. To get the contents of the triangle acd , multiply half the base, or .057735, into the altitude ac , .1, and we have .0057735. There are

six such triangles in the hexagon, and 6 times .005735 is .03461, the contents of a worker-cell represented in the decimal of a square inch. This is contained in one inch 28.8676 times, a trifling shade more than 28½.

Counting 25 cells to the square inch gives us 3600 to the square foot, against 4157 by the true measurement, a difference of 557 in a square foot. Will it not be better, ordinarily, to say 29 worker-cells to the square inch? C. C. MILLER.

Marengo, Ill.

Friend M., I am glad to see you have had proof that the quality of the honey is sometimes, if not always, greatly improved by being ripened in the hive; that you have also learned that this thoroughly ripened honey will sometimes, if not always, remain clear, without candying. I have, like yourself, seen honey, so poor as to be pronounced almost unfit for use, become beautiful honey in the course of time, by being simply ripened in the hive thoroughly.—Regarding the number of cells to the square inch, I have long been aware of the point you make; but if you measure several square inches of ordinary comb as you find it—that is, comb manufactured by the bees—you will find it runs less than 25 cells to the square inch oftener than it does more. This matter was discussed a good deal years ago. Since most of the combs in our hive are now, however, made of cells built on foundation, the case will probably be different. You are basing your conclusions on the statement that five worker-cells side by side measure just an inch across. This is not true however, if I am correct, with little if any of the foundation we have in the market. Years ago we settled down on a size of the worker-cells, so that 24 equal 5 inches; and I believe that most manufacturers of foundation-rolls have followed us in the matter.

SUGGESTIONS FROM READING TWO BACK VOLUMES OF GLEANINGS.

WINTERING, WOODEN BUTTER-DISHES, VENTILATION, ETC.

FRIEND ROOT:—Having been bed-fast for three weeks, floored by rheumatism, and having read every thing else available, I got out two years of GLEANINGS, and have been going through them. They were very interesting to while away the time. I am much amused to see what a mutual-admiration society you old beekeepers have formed yourselves into. I think if bees could live on taffy you fellows need lose none, even if the drought did cut the honey crop short. But with all the chaff you talk about, there is a good deal of grain.

I have become much interested in the discussion of wintering; and, every thing considered, I think Doolittle is as near the mark—in fact, more so—than any of the old heads. Chaff wintering in this country is about on a par with under-house cellars—neither will do to tie to. Outdoor cellars do for us. Make them, say, six feet deep, and put all the earth you take out on top for a roof; sod over with blue grass; leave a hole about six inches up through the top for ventilating. Make two doors, an outside and an inside. With this kind of a re-

pository you will find that you have an even temperature at about 40°.

As to hives, if you find one that will beat Oliver Foster's Simplicity for comb or extracted honey, you will have to search many long years, in my humble opinion.

WOODEN BUTTER-DISHES.

I have always wanted a bee-feeder, but could not find any that suited me till in GLEANINGS I read about the wooden butter-dish; then I knew, without thinking, that I had found what I wanted, and tried them with the utmost satisfaction.

I was much interested in your discussion of the ventilation of our houses, and the impurities of our water-supplies. Like yourself, I drink water caught from the clouds, when I can get it, though I have a drilled well, and get water from the rock a hundred feet from the surface. My sleeping-room and sitting-room are heated by an old-style fireplace in which I burn wood. I am fifty years old, and this is the first time I was ever sick, and I think this was caused by overwork.

The drought cut our honey crop short. My bees, however, have plenty to winter on, save three late swarms, but no surplus. I have an idea that bees will be as scarce in the spring as good honey is now.

ED. PARKER.

Union, Iowa, Nov. 11, 1887.

FIXING THE BEES FOR WINTER.

MRS. CHADDOCK'S PRACTICE AND PHILOSOPHY IN REGARD TO IT.

WHEN I went to fix up my bees for winter I found four colonies that had plenty of stores, one that had perhaps enough, and one that had perhaps enough—. That minus mark means that they have perhaps enough, but that is very doubtful, while the "perhaps enough," without the "—," means that likely enough they have plenty. Ten others that I knew had not stores enough, I united. I did this by setting one Simplicity hive on top of another, leaving the piece of muslin between them for six hours. Then I put one hive on one side of the old stand, and the other on the other. I took a frame from first one hive and then from the other. If the frames as I came to them contained plenty of honey, I put them in; if not, I shook the bees off into the new hive, and set the frame to one side. When I had 10 of the fullest frames in I put on the muslin and an empty hive-body to shade them, and left them to subside. The light frames I put away to give them, if I find they need more honey. The other six I will winter in the cellar. They have probably 20 lbs. or so, and I have some unfinished sections that were left from last year, that I shall give them if they need more in the spring. These unfinished sections were on the hives all summer; and when I took them off they were just about as full as when I put them on. The outside ones were empty, so that, when looking in through the glass, they looked to be all empty, but some of them are half full.

Now, this honey that my bees are to winter on is black and thick—very thick. I think there is not much grape-juice among it, because it is so thick; but I know that the bees worked for two weeks, just before frost, on plant-lice honey. The evergreens, cabbages, grass, and weeds, were covered with them; the limbs and bodies of the evergreens,

the stalks of the cabbages, and the stems of the weeds and grass; and the boys told me that they saw the oak-trees in the woods just covered with bees. Now, all of you will say, "Why did you not extract all that foul stuff, and feed sugar syrup? Your bees will all die."

Well, I did not have an extractor. I suppose if I had sent for one it would have cost me ten dollars; then the sugar, say \$40.00, so I would have paid out \$50.00, and then taken the risk of wintering them. But if they all die, I can buy a pretty good start of bees with fifty dollars. The hives are just full of bees, many of them young.

After I had packed those that are to winter outdoors, I took pieces of broken sections, as does Doolittle, and wrote, "This colony scratched around and provided its own winter food," and put one in the top of each hive on the chaff. Then for the united ones I wrote, "This colony is composed of two others that could not gather enough honey to winter on." I did this so that I may know which is which next summer. Seems to me I'd rather have bees that can get enough to winter on when those just beside them, apparently as strong in bees, have only half enough.

Now about this honey-dew. The frames are not filled with it; all of the frames have a streak of white-clover honey along the top, some reaching half way down. This is as good as any thing could be; and if it should prove to be an open fall they may get all that honey-dew eaten before the hard winter sets in. I want to say, if it won't make this letter too long, that I like Mr. Doolittle. I have liked him a long time. Every thing he says sounds good and genuine.

BEE-KEEPING FOR WOMEN.

Bee-keeping is too hard work for women. Seems to me I've said this somewhere before. They say that all good preachers preach the same sermons over every seven years. Well, if good preachers do that, a poor writer may be pardoned for writing the same letters over now and then. I say, bee-keeping is too hard work for women, and I know by my own experience that it is so. I have done all other kinds of work on the farm but help thrash—I never did that, except to thrash out buckwheat with a flail. I have set out hedge-plants day after day; I have planted evergreens and larches; I have raised strawberries, raspberries, and blackberries; I have raised and sold vegetables; I have hilled up celery; I have mowed grass, loaded on and unloaded hay; I have bound wheat and oats and rye; I have husked corn day after day for six weeks; I have done all and every kind of housework at one time, sometimes with a baby in my arms, but I never had any kind of work to make me as weak and sore and nerveless as working with bees. I feel as if I had been pounded with a base-ball bat from head to heels; I ache all over. I have wondered sometimes if the poison from the bee-stings has anything to do with it. No one need tell me that bee-keeping is suitable work for women, preachers, and invalids. I know that bee-keepers ought to be giants, with nerves and every thing to match. I am going to quit keeping bees. First, because I am not in a good location; second, because it is too hard work; third, because all my family are mad when I bring the bees into the house, as I am obliged to do whenever I take off honey or honey-boxes. I used to think, a long while ago, that the reason I did not have more honey was because I did not have bees

like other people's. I sent and bought other people's bees. Then when I did not have any 400 lbs. from a single hive, I thought those other bee-keepers lied; but now I believe every word they say. I do not care where they live, nor who they are; I believe them, for I am a bee-keeper myself.

MAHALA B. CHADDOCK.

Vermont, Ill., Nov., 1887.

My good friend, in your third paragraph you make a pretty good point. If it is true that it would cost \$40.00 for the sugar, I believe I should have to decide as you do. If the stores they have already would be worth nothing on the market, you would really be \$40.00 out; but your extractor would be worth as much after you are through with it as before, or pretty nearly so. I think it is true, sometimes at least, that it will do to let the bees take their chances, to a certain extent; and if they die, buy new ones in the spring. I am presuming, however, that bees can be bought at a moderate price in the spring. Of late years, a good deal of the time they can be bought for almost what it would cost for stores to winter them; but this may not be always true. We used to figure a dollar's worth of sugar should keep a colony, even if almost entirely destitute of winter stores. Well, \$40.00, then, will purchase sugar enough for 40 colonies; but \$40.00 would hardly purchase more than 10 colonies, even if you let the owner keep the hives. I presume, however, that you mean that you could soon increase from 10 to 40. The honey-dew, it should be remembered, is by no means *certain* to kill the bees. We have had quite a few reports of bees wintering nicely where the honey-dew was properly evaporated and sealed up.—In regard to the hard-work part of bee-keeping, I believe there are quite a number of your sex, my good friend, who can make out quite a different story; and then, again, it is not so much whether the work is heavy or hard, as it is whether or not the *heart* is in it. I would very much rather bank up celery till it makes me puff and sweat, than to sit here dictating matter to the stenographer; but perhaps if I had to bank up celery from daylight till dark, I should be glad to have something easier a part of the time. Is it not true, that we make a mistake when we adopt altogether hard work or altogether light work?

REDEEMING FEATURES OF A POOR SEASON.

PREPARATIONS FOR A HONEY-FLOW; WEST VIRGINIA IN 1887.

SAY what you will, the fact still exists, "Misery loves company;" and this is why the bee-keepers of this little State fall in line with the great army of crest-fallen ones in Blasted Hopes who got left in 1887. That this great disaster which has befallen our pursuit is not without its valuable lessons, is evident. 1. It will put a quietus to the croaking about manufactured honey. 2. It will rid the country of both the old and the new crop, and once again establish prices that will justify the production of honey. 3. It will decrease the number of bees, as well as the number of bee-keepers, and hence both production and competi-

tion. 4. It has been claimed, that, no matter how poor the season for honey, there are apiarists so skilled in the business that they always get a fair crop of honey. This claim will not now be sustained, since thousands of powerful colonies this season have failed to gather more than enough to supply their immediate wants. This would not be so had there not been nectar in the bloom, accessible to the industrious workers.

Now, I will admit that, by supplying a colony with combs of honey, or by heavy feeding, thereby keeping the combs in the brood department filled, that, if there should come any thing of a yield at all, it must go into the surplus boxes; but this line of management is next-door neighbor to feeding bees to obtain surplus. If supplying the bees with sugar syrup, both for summer and winter consumption, taking as surplus all the honey they may gather, is the proper thing to do, we had better go at it at once. Should this become the practice of all bee-keepers, it would be a poor season indeed that would not supply our markets with all the honey needed; but where would be the market that would take all that would be offered, at any thing like cost of production, in seasons of bountiful honey crops?

While on this subject I want to say that it will pay to feed a little in seasons like the past. It is poor economy to permit bees to run so low in stores while rearing the brood that they must gather in the harvest. They must not reach that point where they will feel the pinch or the need of putting either themselves or their larvae on half-rations, nor of curtailing the queen in the full capacity of egg-production; for if this state of affairs should exist for even a short time, it is very disastrous, and will tell fearfully on the pocket of the apiarist.

Last spring I bought 25 colonies, mostly in box hives. Some of them were heavy; and when transferring them in April, many of their combs were solid with honey, and these bees never felt the pinch of hard times that came to bees that were light in stores in the month of May and first half of June. The result of this liberal supply of old honey was, that these colonies were in the best possible condition to take advantage of every light yield that did come, while the bees that were forced to use sparingly of stores seemed to require several days of honey-gathering to put them in good heart.

I had 90 good colonies to commence the season with. These were divided into three apiaries—one at home, thirty, and two out-apiaries of thirty each. All were arranged for extracted honey, the frames in surplus department mostly being filled with foundation.

White clover did not yield much; but red clover did fairly well. Basswood did well for but a few days.

From the two out-apiaries of 60 colonies I extracted 1100 lbs.; and from the home apiary, which is in the valley near the river, no surplus of white honey was taken.

The first of August there was very little honey in the hives, but the combs were full of brood. About this time we were making inquiry as to the price of sugar and the number of barrels it would take to put the bees in shape. Soon after this, some timely showers brought out a profuse bloom of smartweed, and this was followed by a good bloom of goldenrod, and from these sources it was gratifying to see the brood-combs filling up to the bulging point with a rich golden-colored fall honey.

Aster yielded well, and kept brood-rearing going till the last of October. Our bees are now in the best condition for winter.

LESSONS LEARNED.

This season has proved to me two heretofore unsettled questions: 1. The superiority of the Italians over the native, or blacks; 2. That bees will not fly so far in search of honey as some say they will. My home apiary is near the Ohio River, where there is quite a good deal of fall bloom, and these bees filled their combs so full I had to remove three or four from each hive, putting in their place empty combs, while one apiary, three miles from this fall bloom, gained very slowly, and had to be partly supplied for winter from the home apiary. During clover bloom this same out-apiary, only three miles away, yielded a surplus of over 500 lbs. of honey, while the bees at home stored no surplus.

From what I can learn, the honey crop of this State is very light. The drought, which has been so general, has left white clover in a feeble condition. The prospect for the season of 1888 is not flattering; however, if all goes well we shall be on hand when pollen comes again, full of hopes and expectations as usual.

J. A. BUCHANAN.

Holliday's Cove, W. Va., Nov. 15, 1887.

Friend B., the point you make, about keeping colonies in spring with abundance of stores, is a good one. I have seen just such cases as you mention; and although considerable has been said at times about there being too much honey in the hive in the spring, I can not remember that I ever had a good strong colony that had too much stores. It may have seemed so during March and April; but just before clover opens, when the hive is full of brood from one end to the other, these great heavy combs get used up in some way.

THE BUNDLE OF HERBS HUNG UP IN THE GARRET, ETC.

ONE OF THE FRIENDS TAKES ME TO TASK.

FRIEND ROOT:—You or your informant certainly made a mistake in reference to "that bundle of herbs hung up in the garret," spoken of on pages 826 and 833. Such things certainly are valuable agents in the removal of various ailments of the human system, just as much so as is cayenne pepper (capsicum), may-apple root (podophyllum peltatum), of which podophyllum is made—one of the best purgatives and renovators of the system there is in vegetable materia medica; and the two combined are speedy and very efficacious in their effects.

Of catnip, I will quote the following, from Dr. John A. Gunn's "Newest Family Physician" (assisted by Johnson A. Jordon, M. D., and several scientific writers of the highest eminence): "Catnip—(*Nepeta cataria*), or catwint.—It is a native of Europe, but has become naturalized in this country. The leaves and blossoms are the parts used. Medical properties and uses: Catnip is a diaphoretic; that is, it promotes perspiration; and tonic, if taken cold. It is also slightly diuretic, emmenagogue, and anti-spasmodic. Catnip tea is good for the flatulent colic of children; it is also an excellent drink in fevers, to promote perspiration, and to induce sleep. A warm tea of catnip and saffron is

excellent in small-pox, measles, and scarlet fever, and may be used with advantage in all cases of colds; in nervous headache of females, hysterics, and irritability of the nerves. An infusion of catnip is often good. Though a common article, and by many considered a very simple one, catnip, nevertheless, is a very valuable remedy, and should be used more frequently than it is. In fevers it promotes perspiration without stimulating or increasing the heat of the body. It should always be kept on hand where there are children, as a remedy for colic, as well as in fevers and colds, and may always be taken freely. As a poultice it is very valuable, applied to painful swellings; and as a fomentation, in combination with other bitter herbs, it is often very beneficial, applied as warm as can be borne, in cases of severe pain and inflammation."

"Pennyroyal—(*Hedeoma pulegioides*).—This well-known herb needs no description; it grows almost everywhere, and is known by everybody. Medical properties and uses: It is a pleasant, aromatic diaphoretic, diuretic, and emmenagogue. May be used freely in the form of tea, as a sweating and cooling drink in fevers; in diseases of the urinary organs, suppressed menses, and cold generally."

Many very simple herbs contain the principal ingredients that compose the best of the powders and compounds used in medicine to-day.

Goldsboro, Wayne Co., N. C. A. L. SWINSON.

I do not know but that I shall have to take back what I said, at least to some extent, friend S.; but I do believe that the superstition inseparably connected with using remedies oftentimes does more mischief than all the good that ever comes from taking this, that, and the other, indiscriminately, without the advice of a physician. A few days ago I had a peculiar headache that I was pretty sure would yield to a cup of tea. It stopped it almost immediately, and has so many times that I am forced to acknowledge there is some virtue in it that makes it really one of God's blessings. A friend at the Chicago convention was suffering from a severe headache. I advised him to drink a cup of rather strong tea, and it acted like magic, as it does on myself. My plan, however, is to take the tea as a medicine, but by no means to drink it every day. May be catnip and pennyroyal have their uses in the same way; if so, I am willing to let them pass; but I expect to fight humbugging and superstition in regard to medicine, as I always have done.

CATNIP FOR CATS.

MRS. HARRISON GIVES US PRETTY GOOD EVIDENCE THAT CATNIP IS GOOD.

OUR cat Dot begs leave to differ with you, and presumes also to utter a big cat-call to the big medicine-man, Prof. Cook, as to the curative properties of catnip. He thinks the professor may know a good deal about bugs and bees, but little about "yarbs."

Dot, poor fellow, was sick, poor, and feeble, and wriggled when he walked, and the baby said Dotty could hardly speak above his breath. I said, "It's too bad that we can't keep a cat any more. Now, Dot is going to die. The kittens that I petted all

winter died in the spring. Peoria is getting to be like Leadville, for few cats can live here."

I was out driving, and I noticed catnip growing very luxuriantly, and gathered a bunch and took it home. When I alighted from the carriage I noticed that Dot was smelling and rubbing against me very affectionately, and trotted along after me, as I carried the bunch of catnip. I threw it down on the grass, and then there was a picnic. He took it in his arms, and, lying on his back, rocked it and then rolled over and over upon it, expressing his joy in every way he could. He nipped off the leaves and ate them with evident relish, and continued to eat them until it was all gone. Dot got well and fat, and caught all the mice around the hives and in the chaff cushions packed away in the barn. I tell you, friends, he has been a bully cat since he ate the catnip. In the fall I gathered catnip-seed, and scattered it under the shrubbery, and transplanted some of the roots. In the spring, to make assurance doubly sure, I took a spade and lifted carefully four large bunches, and set them out carefully, sticking down sticks to keep off cats and chickens. Now, Dot, although a good hunter, is a poor gardener. He pushed his head in through the sticks, kneaded, danced, and pranced in joy on discovering his favorite, until it was destroyed. I noticed a plant of it growing very near the honey-house, and I said Dot sha'n't roll upon that until he kills it. So I melted out the ends of a tin can, and pushed it down in the ground over it. It flourished for a while, but soon had the appearance of being nipped off, and finally disappeared. Another large plant, protected by bricks against the side of a hive, grew to be a foot high, and branched out nicely, my joy and pride, when it disappeared during a serenade of neighboring cats, held in the apiary. Dot is a well-behaved cat. He attends to his business strictly, and does not wander from home far enough to find catnip growing in the hedges adjacent to the city. If he were a gadabout, out of nights visiting and serenading the neighbors, and calling to his fellows, "How many buttons have you on your coat?" he might find some.

I've often said, that hot water is the best medicine under the sun, yet at the same time I fully agree with the Indians of North Nipissing with regard to the curative properties of hoarhound and honey. At one time I had a cough for a year. I gathered a big lot of hoarhound and filled the wash-boiler, and let it steep. When I thought it had steeped enough I strained it off, and boiled it down until there was not more than two quarts of it, and then I sweetened it with honey. The doctor said, "It will not cure your cough; it may do a little good as a tonic." But I kept eating it until the cough and I had parted company—as it were, dissolved partnership.

Peoria, Ill., Nov. 7, 1887.

MRS. L. HARRISON.

My good friend, you have given us pretty good evidence to the effect that cats are fond of catnip, which is something that I did not know before; but it does not seem to be so clear that the catnip was the occasion of Dot's recovery; and in the same line, although the hoarhound and honey was a nice medicine to take, I can not see any very positive evidence that the cough did not leave of itself, without any assistance from the hoarhound. I should be sorry, however, to have hoarhound go out of fashion. Whenever I taste of hoarhound candy it brings

back many memories of childhood that I fondly cling to. If hoarhound honey is like hoarhound candy, I should be almost willing to have a little cough for the sake of having it prescribed. Very likely it is good for a cough; at least, I hope it is; so you see I am thus far on your side of the question.

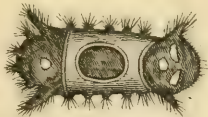
BEE ENTOMOLOGY,

Or Enemies of Bees Among the Insect Tribe.

SADDLE-BACK CATERPILLAR.

THE curious-looking caterpillar from C. H. Longstreet, Mount Dora, Fla., which he says he finds on his grapevines, is no stranger to me. It is found rarely all over the United States. It is known to science as *Empretia stimulea*, and has been called, very appropriately, the saddle-back caterpillar. When full grown it is about one inch long. It is of a reddish-brown color, and is well covered with fine spines. If one handles this larva, these spines prick the flesh and give the same sort of sensation that is received from handling a nettle. We have a few other larvæ of moths that sting in the same manner. A broad bright-green space covers, broadly, the back of the caterpillar, while at each end the reddish-brown color is seen. Two long brown spine-bedecked tubercles arise from this brown space at each end, while in front are two more pairs of similar (though smaller) tubercles. Between both pairs of the larger tubercles is a circular white spot, and on the posterior end two lateral white spots. In the very center of the back, surrounded by the green, there is quite a large circle of rich brown surrounded by a narrow belt of white. It feeds on foliage, apple, cherry, grape, raspberry, currant, rose, corn, etc.

This curious caterpillar, which would attract attention from its oddity, forms a globular cocoon, and finally develops into a rich brown—almost velvety—moth.



THE CATERPILLAR THAT HAS SPINES ON ITS BACK, THAT STING LIKE NETTLES.

It only remains to be said, that if this caterpillar is handled by tender hands it will form pustules and quite a considerable irritation, much like a nettle. The inclosed figure shows quite accurately the form and markings of the moth.

A. J. COOK.

Agricultural College, Mich., Nov., 1887.

Now, look here, old friend. Do you remember the time when we were out together, and, passing under some blackwalnut-trees, you ran and caught up the caterpillars in your fingers, as a schoolboy would catch up kittens? It made my flesh crawl to see you do it, and I told you at the time that I should be afraid that some of these things would bite or sting. Now, if I remember correctly, you said at the time, that bugs, worms, spiders, caterpillars, and even the

great horrid tomato-worms, could not sting or bite or hurt in any way, even if they wanted to, and that therefore we need not be afraid of them; and now you own up to friend Longstreet that these caterpillars with pricklers on their backs *can* sting—at least, as much as a nettle can sting. Suppose I had followed your advice, and picked up one of these fellows, and had got stung. Perhaps you meant that they do not sting very bad—nothing like the honey-bee. If a caterpillar should sting me as bad as a honey-bee does, I presume I should imagine that I was killed entirely.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

KEEPING BEES IN A DORMANT STATE.

FRIEND ROOT:—In your notice of my letter on page 408, you did not do me justice. I will take part of the blame, for the letter was poorly written. In the first part of my letter I said it had been proven, years ago, that bees could be kept in a dormant state all winter, and so it has; and I also said I had kept them three months myself. What I said about bumble-bees was a comparison. If you will allow me a little space I may save some of the bee-fraternity from disappointment in trying to keep bees in this way. In the first place, the bees must be full of honey, and properly chilled, and then they can be kept on their own combs, if there is no brood, and that is one of the drawbacks in keeping bees here. It is best to keep them in a clean dry box, and cover the box with two or three thicknesses of old carpet, or dry dirt enough to take up any moisture that may be in the air, and then kept in a cool dry place. I would not advise any one to try it until cold weather, unless you have a fruit-house. If you wait until cold weather they can be kept from one cold snap to another in almost any place.

Delaware, O., Nov. 7, 1887.

C. E. JONES.

BEE-KEEPING AMONG THE MORMONS.

I am much pleased with GLEANINGS and your A B C book, and have sent to you for some supplies within the past two years, and shall have occasion, no doubt, to send in the future. In connection with my work as missionary among the Mormons, under the American Home Missionary Society (Congregational) I take care of about 20 swarms of bees, but can not take the care of them they need. I have foul brood among them, but I think in this very dry climate it is not so bad as in some Eastern States. In moving them this winter from B. to S., 20 miles, I shall bring only the young swarms that are clear of it. We have had quite a good honey year, and the quality is first class. We have a good deal of sweet clover, considerable white clover, great quantities of lucerne, or alfalfa, and some cleome. If you ever make a trip to California I should like to have a call from you on the way, and I will show you the beauties of Mormonism. I have been here six years, and see but little change for the better. We hope for something decisive before long, but may be disappointed. We do most sincerely hope that Utah will not be ad-

mitted as a State, with the fraud of a constitution lately provided by the Mormons.

Sandy, Utah, Oct. 11, 1887. DAVID PEEBLES.

HOW TO MAKE BIRD-LIME, TO CATCH MEMBERS OF THE FEATHERED TRIBE, ENEMIES OF BEES.

Friend Root:—I spoke some time since of telling how to make bird-lime. There may be difficulty for some to make it, as it is made from the bark of the holly-tree, and that grows only in the South. First, peel the bark from the tree, and boil it soft; then strip the outside skin off, and throw it away. Bury it four days, after which beat it into a pulp. Wash clean, when it is fit for use. As to its use, smear a twig with the lime, and fasten it so the twig will drop. When the bird alights, the feet stick to the twig, and the wings get stuck so the bird can not get away, and is caught fast. The lime will keep for a year. You might have holly bark sent from the South, and try it. It is well worth the trouble. If you can not succeed, send the bark to me and I will make it for you, or else I have forgotten the cunning of my boyhood. To remove the lime from the feathers, put fine dry dust on, when it will come off without any trouble. DAVID ROSS.

Esbon, Jewell Co., Kan., Nov. 9, 1887.

THROW IN THE KEGS AND CAN.

Friend Root:—Since returning from the National Convention at Chicago, where we had a pleasant and profitable meeting, I have been reading GLEANINGS for November 15th. I am glad you adopted the question-department system, for it is an exceedingly valuable one. I believe I am safe in saying that it is worth from five to ten times as much to the reader as the same space filled with other matter as it runs. In your foot-notes to my article on page 844 you bring out a point that I overlooked; that is, that we never charge any thing for packages in which we ship honey, no matter whether it is comb or extracted; and we ship the extracted honey, mentioned in that article, in good wooden-jacketed tin cans holding 48 pounds each. I don't believe it is good policy to charge extra for package. This we think we do at ten cents a pound, so it seems that there is not much difference in our prices after all.

When I saw the illustration of the bee's legs on page 847, by Prof. A. J. Cook, it brought to mind the splendid lecture he delivered to us in Chicago at the convention, and so amply illustrated. As he was talking to us about the laws of evolution, it sent a thrill of pleasure through the heart of every lover of science. May we all live to enjoy more such meetings, spiced with such lectures as the one given by Prof. Cook at Chicago. JAMES HEDDON.

Dowagiac, Mich., Nov. 22, 1887.

INTRODUCING BY TAKING AWAY THE COMBS.

On page 765, Mr. Doolittle has an article on fall introduction of queens. That cage is to "Do-a-good-deal;" but, Mr. D., try this: Just pick out your queen, sweep your bees off the comb, kill your other queen, and hang the cage in the corner of the empty hive. I will tell you how, in 1881, I came to try it. A bystander asked, "Without bed and board, wouldn't they be accommodating?" From that suggestion I tried it in this way: Sweep the bees all off the combs, without any regard to their being full of honey; shove a cup with half a pint of syrup or honey into one corner of the hive; hang the queen over it in a cage, throw a piece of

cloth over the hive, shut on the cap; in a day or two set in the combs, and let me know when you lose one, if you please. H. L. JEFFREY.

New Milford, Ct., Oct. 23, 1887.

Friend J., I have no doubt your plan will work almost if not quite every time. The matter was mentioned years ago in our journals; but the objection was made, that it was too much trouble. I remember having a nucleus that would not take a queen at all. They seemed to cling to their brood, and determined to raise a queen themselves, so I took all the brood away. That seemed to make some difference, but they balled her even then, when I decided to move all their combs and all their stores. While they were clustering on one side of the nucleus hive, I gave them a queen they had been determined to sting before, and then they accepted her and behaved themselves. But when I gave them their combs back again they balled her again, so I left them, I believe, two or three hours, may be more, hanging on the side of the hive and cover without any thing to eat at all; and after that they accepted the queen without any further trouble.

A PLEA FOR KING-BIRDS AND OTHERS OF THE FEATHERED TRIBE.

In an article in GLEANINGS, Aug. 1, page 531, by S. E. Miller, of Bluffton, Mo., in which the king-bird is rather abused, he is not positively certain that he discovered honey-bees in the crop of the birds he killed. Now, I have handled bees more or less for nearly 50 years, and I never believed that king-birds ate bees, and I do believe that, if a king-bird should swallow a whole honey-bee the sting would be very likely to kill the bird; and in order to prove what I say, I will tell what I know about the matter. Years ago, when I lived in the town of Allegany, N. Y., I had a few swarms of bees; and one day I noticed a pair of king-birds very busily catching something right in front of the hives. My brother, who was on a visit with me at the time, noticed them also, and said he believed they were catching the bees; and the evidence was so strong against them I told him he could shoot one and see whether they were guilty or not, and he did so. I immediately opened the bird's crop, and no vestige of a bee was to be found, but, on the contrary, the crop was half full of flies that were in a perfect state. I went to the hives and discovered just such kind of flies sitting in front of the hives among the bees, and from that time on I have not allowed king-birds or any other birds killed on my premises, if I could possibly avoid it. When I was a boy I thought I was doing a good thing to kill birds; but as I become more civilized I found that birds were made for the purpose of helping mankind, and there are no animals on earth that serve him as faithfully, and I for one will not be so wanton and cruel as to harm a single one of the faithful servants.

It is too bad, after the great Giver of all good has furnished mankind with feathered servants, that he should be the first person on earth that is willing to see them destroyed. When I landed in this western wilderness of prairie, twenty years ago, the very atmosphere was thick with mosquitoes and green-heads, with scarcely a bird to be seen. A swallow was a very rare thing; but now flies and mosquitoes appear as usual, but they disappear again as

if by magic; and the reason is attributable to the large increase of timber groves, harbors for the feathered songsters, and the air is dotted with swallows and other birds that live almost entirely on insects. I saw, only a few days since, a flock of whippoorwills, or night-hawks, so called by some, of nearly a hundred, and they live entirely on flies and mosquitoes, or what they take as they float in the air. In fact, I am of the opinion, from actual observation, that, were it not for the fowls of the air, we should raise but very little grain of any kind in this or any other country.

Now, friend Root, I want to tell you of a little incident that transpired just nineteen years ago. I had several boys that were just old enough to commence handling a gun; and as we were not much acquainted with eagles, such as we found out here on the prairies, we all thought they should be killed for fear they might kill some of our chickens some time or other. One day the boys found an eagle's nest, and, of course, I made no objection to their shooting the old female while sitting on the nest in the tall prairie grass; but I have objected ever since to shooting eagles or any other wild birds; for just as I heard the sound of the gun that killed the faithful old mother-bird I saw the male eagle with a striped gopher in his talons, hastening toward the nest to supply his mate with food; and I shall never forget the heartfelt sorrow that came over me at that time, for he had taken the gopher out of my cornfield—probably caught him in the very act of digging up my corn, and I allowed my boys to murder his faithful spouse. F. M. NORWOOD.

Whiting, Ia., Sept. 10, 1887.

It has been proven, over and over again, that king-birds do swallow bees. A good many reported, during the past season, of having found bees in the birds. But for all that, I think we ought not to be too hasty in giving the death-warrant. There is no question that our feathered friends do us a vast amount of good in the way you mention.

HOW LONG DOES IT TAKE TO ITALIANIZE A COLONY?

I have a colony of bees I think are acting curiously. I Italianized them Aug. 5th. The queen I got was a tested one, and was received all right. Oct. 17th I found her lying dead in front of the hive. About four-fifths of the bees are nice three-banded Italians; the rest are black. Do you think the queen was superseded? Why are there so many blacks in the hive, after being Italianized so long?

Hesler, Ky., Oct. 28, 1887.

J. T. RUST.

Why, friend R., the fact that you found some black bees still in the hive was nothing unusual. The queen had not been in the hive long enough at the time of the year you state, for all the original blacks to die off. The queen was doubtless superseded.

MELISSA: AN INTERESTING CASE OF CROSS-FERTILIZATION AS EFFECTED BY THE BEES.

In GLEANINGS, p. 817, Nov. 1 issue, you ask Mr. Morgan if he had plants (referring to melissa) that produced some white and some colored blossoms. Allow me to explain how that was effected: All the blossoms were white, originally, and remained so until I procured bees. I noticed the next season thereafter, that quite a large number of plants put forth blue flowers, and the stalks had under-

gone a change—transformed from green to purple—another proof of the agency of bees in cross fertilizing and improving flowers.

Please correct the statement you made in last issue, to the effect that I sell $\frac{1}{2}$ oz. of melissa-seed for 50 cts. I never have sold less than a full ounce for 50 cts.

A. C. TYRREL.

Madison, Neb., Nov. 13, 1887.

I really beg pardon, friend T., if I made a mistake. I don't know where I got the idea that it was only half an ounce for 50 cts. It may have been a mistake of the printers.—In regard to the point you make, about the agency of the bees in producing different colors, my experience is that both vegetables and flowers are very liable to sport in this way. For instance, the Mikado tomato, which has always been red, every little while gives us a plant producing yellow tomatoes, with all the other characteristics. In a lot of red peppers, say 200 or 300 plants, I was surprised to see one day some peppers turning to so brilliant a yellow that they looked almost like coals of fire. I pointed them out to my wife in great glee, saying that I had a new variety; but she threw a wet blanket over my speculation by saying that red peppers always do that way. She was brought up on a farm, you see, and knew. Now, don't the melissa-plants put in another color just for the fun of it?

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 19.—*Can more money be made (employing labor, keeping a horse and wagon, etc.) by managing out-apiaries, than by keeping a limited number of colonies in one location, and doing all the labor yourself, assuming that the apiarist is possessed of sufficient capital, energy, and ability?*

Yes.

C. C. MILLER.

Yes. Adam Grimm did.

MRS. L. HARRISON.

I prefer only the one apiary. G. M. DOOLITTLE.

See answer to Nos. 20 and 21. I do not believe general answers can be given.

A. J. COOK.

In a good year, yes; in a poor year, no. On an average, yes.

GEO. GRIMM.

I have no doubt that it would be more remunerative, provided competent labor is employed.

PAUL L. VIALLO.

It is far better to have a horse, and keep more bees in different locations, for there may be some crop in one place and none in another not far off.

DADANT & SON.

I have no experience with out-apiaries; but I feel sure that it would require better territory than the openings of Lucas Co. to justify much employment of labor.

E. E. HASTY.

The correct answer to this question depends upon the man, the location, and more particularly the problem of overstocking; notwithstanding a very important one, little yet seems to be known about it.

JAMES HEDDON.

I think more money may be made by managing out-apiaries. Much depends on the man.

W. Z. HUTCHINSON.

That depends on the location. In most localities, yes; for that sufficient capital, energy, and ability, means success in money-getting, in any business.

DR. A. B. MASON.

Yes, we think so. We have five out-apiaries; but if every year were like this, we should be better off without them. We have done well other years, and I am in hopes to again; at any rate, if there is any profit in running one at home, the out-apiaries could be made profitable also.

E. FRANCE.

I have not had much experience in this line; but I believe that a man with the necessary qualifications, and sufficient capital, with a wise selection of assistants, could make a great deal of money with out-apiaries. The necessary qualifications—there's the rub!

J. A. GREEN.

The answer to this question requires more "ifs" than are pleasant. Bee-keeping can be made a paying business either way, if capital, energy, and ability are sufficient, if—the season is good; but when crops are below the average, and prices low, there is no profit in hired help for the bee-keeper.

CHAS. F. MUTH.

I think, that perhaps nine out of ten will make more money by keeping only as many as they can handle themselves, or, at most, have a little help in the height of the season; yet occasionally a man may have favorable locations, and have the peculiar business talent of managing affairs, and getting the most service from his employes that he will make very much more by running a larger business.

R. WILKIN.

Yes, I think so. All these questions about out-apiaries (Nos. 19 to 24 inclusive) seem to have been asked by some one who has an idea that it is more profitable to scatter bees into small out-apiaries than to keep them in one or two large ones; and as I believe, and have always worked on the opposite theory, I can not answer his question from practical experience. I have watched this matter with much interest for years, and am satisfied that I obtained fully as much honey per colony when I had nearly 200 in one place as I did when I had less than 50, and fully as much as my neighbors did who had small apiaries. The only good reason I can see for scattering bees into small lots is to obtain different kinds of forage, where different kinds of flowers are found in different situations within a radius of a few miles. Of course, the less number of apiaries any certain amount of bees can be kept in without lessening the yield of honey, the better.

O. O. POPPLETON.

QUESTION NO. 20.—*How many bee-yards, including the one at home, can an apiarist manage successfully, with two assistants? As a rule, how many colonies should be kept in each of the out-apiaries in your locality?*

Ten, if not too far apart. About 100 colonies.

GEOR. GRIMM.

That will depend upon the distance apart, and whether run for comb or extracted honey. Fifty to seventy-five.

MRS. L. HARRISON.

No experience; should expect them to run about seven apiaries of 50 hives each.

E. E. HASTY.

It depends upon how they are managed. I should say 3 apiaries in all, and not less than 100 colonies in each.

W. Z. HUTCHINSON.

See answer to No. 21. So much depends upon the man that it is difficult to answer, even if one has experience.

A. J. COOK.

An out-apiary ought to contain as many colonies as the home one. See answer to previous question on that point.

O. O. POPPLETON.

1. That depends upon the ability of the apiarist, his assistants, and the locality. 2. From fifty to one hundred.

DR. A. B. MASON.

1. With occasional assistance, one man can manage 400 colonies in 5 apiaries, run for extracted honey. We do not want to exceed 100 colonies in any apiary.

DADANT & SON.

If the three spend their whole time at bee-work, perhaps five, if not more than 50 to 75 colonies are in each apiary. Not more than 100.

C. C. MILLER.

It would be impossible to have an out-apiary in this locality, for there are already all the bees kept that can be kept profitably, by A, B, C, and D, all around me.

G. M. DOOLITTLE.

I have never kept separate bee-yards; but I have managed 450 colonies of bees in one yard with only one assistant, but I had to work hard from daylight to dark, and at night I had to prepare for the next day's work.

PAUL L. VIALLO.

I will not try to answer this question, for the very reason given in my answer to No. 19, further than to say that I keep about 200 colonies, spring count, in each of my apiaries.

JAMES HEDDON.

About 300 colonies of bees in one location, whether at home or abroad, seems to be the right number to start in the season with, provided there are no other bees within three miles of you; and two men can manage such an apiary, except it be for two or three weeks in the height of the season, when another hand may be needed. I speak of Southern California.

R. WILKIN.

I have never kept more than a few colonies at a time, mostly for experimental purposes, in out-apiaries, so I can not answer this from experience. I think that, as a rule, I should not want over 50 to 75 colonies in each out-apiary. I should say that five such bee-yards would be well managed with the help mentioned. With every thing favorable, more might be done.

JAMES A. GREEN.

We run all of our out bee-yards for extracted honey. There is only a month that we want any help, and not all of that time a full force. We go as far as eight miles and work a yard of 80 colonies, spring count, in one day, and aim to work each yard once a week. We hire one good hand early in the spring, as we have other work besides the bees. First visit to bees in the spring, two of us go and examine the bees, then we increase our force as we want, until when we are extracting there are ten of us. Now, one man can handle just as many yards with two assistants, but he must have only as many bees in a yard as they can work in one day. We think our location will work 80 colonies, spring count, in each yard, profitably.

E. FRANCE.

QUESTION NO. 21.—*How much capital will it require to run, say five bee-yards, including the home apiary, each containing 50 colonies? About what income ought this number of bee-yards to bring their owner, managed as economically as possible?*

See answer to number 19. O. O. POPPLETON.

Too indefinite to answer. GEO. GRIMM.

Capital, \$3000 to \$4000; income, \$1000 to \$2000.

JAMES A. GREEN.

There are too many ifs and ands about this.

W. Z. HUTCHINSON.

Five hundred dollars. One thousand, in a fair season.

MRS. L. HARRISON.

This, like No. 22, depends much on a complete system, locations, etc., and an answer would be only guesswork.

G. M. DOOLITTLE.

Ask D. A. Jones, Dr. Miller, Geo. Grimm, and Capt. Hetherington. I could guess, but they doubtless can answer authoritatively.

A. J. COOK.

This is a rather hard question to answer, as there is so much difference in men about management, and a great difference in location, and a difference in the price of honey. This year proves that the seasons are not all alike.

E. FRANCE.

Not over \$500 outside of the bees. This will bring \$700 to \$800, perhaps \$1000, labor not deducted. This \$800 is an average of 15 seasons with us. Some are better, some poorer.

DADANT & SON.

This question is like the two foregoing; no one can truthfully answer it definitely. I presume I put more capital into an apiary than most other bee-keepers do. I want things right, and just as I want them, and usually go to the expense of having them so. I will not try to tell what number of dollars an apiary would bring in, in any locality or in any year.

JAMES HEDDON.

I'm not sure I understand the question. He would want, of course, the colonies, and all the fixtures: and besides these, perhaps not less than \$600 to pay for help, horse, and wagon, sections, foundation, etc. If he got an annual crop of 10,000 pounds, and a net price of 12 cents per lb., his income would be \$1200.

C. C. MILLER.

If you are so foolish as to "flounce into it" all at once, buying every thing, it will cost you \$2000 or \$3000. The more prudent way is to work into the business, making most of your capital. On such a territory as mine, your balance-sheet would look about like this:

Interest on capital.....	\$120
Board and wages, 2 men 6 months.....	384
Apiary supplies.....	250
	\$754
10,000 pounds of honey.....	\$500
Wax.....	50
	\$550
Out of pocket.....	\$204
	E. E. HASTY.

This depends on the price you would have to pay for the bees, rent of land, and labor. Considering the value of bees, land, and labor in this State, I would not undertake it with less than \$2500; and at the present prices of honey here, I don't think that I could expect more than 30% net. If you already have the bees, and have gradually establish-

ed these bee-yards with your increase from home apiary, you will not require as much ready cash, but the value will be the same, and your income calculated therefrom.

PAUL L. VIALON.

Dear friends, I have read these questions, Nos. 19, 20, and 21, with very much interest; and I am very glad to see so many of our veterans so cautious in giving their replies. It is true, I believe, that, "what man has done, man can do," as we used to put in our old copy-books; but, alas! it is also true, that, what man has done, a great many will *not* do. These questions run into the matter of employing labor and capital; it runs into something where I have had, as you know, large experience. Friend Hasty hits at the truth where he says, "If you are so foolish as to flounce into it all at once," etc.; for while it is true, that a good many have within themselves the ability to manage men and property, they can not do it unless they are educated to it little by little. You don't want capital to start with. I sometimes think we don't need capital to start any sort of business. Over and over again have I assured young people that God would send the capital as fast as they made themselves capable of using it, but they won't believe me. When friend Dadant paid us a visit some years ago he was very much pleased with our different lines of business, and he made a remark something like this: "Mr. Root, you could never have handled all this without experience. You began on a small scale, and worked your way along carefully. We have followed you, and know something how you have been growing, little by little, day by day. But I tell you, there is something grand in being able to handle such a business as this." I put in the last sentence by way of encouragement. There is a reward for him who becomes proficient and expert in any line of the general business of the world. Now, then; if you want to be a bee-keeper, get one colony; when you can manage that successfully, you will not need to get another, for you will have it already, and so on. When you can manage fifty or one hundred colonies well, and feel like trying more, start another apiary, not very far away. If this is too much load to carry, don't start any more. Don't cripple your strength before you have grown enough to bear the burden easily. Add a third when you are equal to the task. You may buy implements and hives, if you chose, but I don't believe it is often best to buy bees, unless you run down by losses in wintering, or something of that sort. Don't be in haste to do great things. Capt. Hetherington, if we are rightly informed, has twenty apiaries, comprising about 2700 colonies, and he is making them pay too, I believe. But the care and responsibilities are so great that he hardly has time to stop and have a good visit, even with such a man as Mr. Cowan, who came across the great ocean to see us. After you have got all these things, you may question whether they are worth the price you have paid. We should always remember, that the things of this world are by no means the most important things.

MYSELF AND MY NEIGHBORS.

OUR NEIGHBORS IN THE LARGE CITIES;
THE N. A. B. K. ASSOCIATION IN
CHICAGO.

ON the morning of Nov. 16 I made my way to the Commercial Hotel. In response to the question, if that was the place where the bee-keepers met, the clerk nodded, and a bee-man behind my back made himself known; and pretty soon I began to feel a little at home in talking with our correspondent J. A. Green, of Dayton, Ill. Friend G. signified his desire to go along with me when I went out on my raids to find greenhouses, etc.; and before long I felt glad he had done so. Pretty soon Dr. Miller, president of the association, made his appearance, and then there were lots of bee-friends to shake hands with. While this was going on, Dr. Miller brought forward an ordinary-looking individual, with the words, "Here is just your man, A. I. Root; he will tell all about it." And then Dr. Miller was hurried off to look after something else in regard to the interests of the convention, which was to open soon. The individual just referred to commenced asking questions; and I answered as well as I could between times, while I was shaking hands and making neighborly replies to the many neighbors who were inquiring for A. I. Root. They knew me, even if I did not know them. Well, after I got through answering questions for the stranger I forgot all about it; and, in fact, so many were talking to me, and shaking hands, it would be strange if some of my answers were not a little disconnected and a little out of the way. Imagine my surprise on finding the following in the *Chicago Daily Mail* next morning, even before daylight:

BEES AND BOGUS HONEY.

THE FORMER DISCUSSED BY THEIR BREEDERS IN CONVENTION AT THE COMMERCIAL.

MANUFACTURING IMITATION COMBS A FAILURE, AS IS CHEATING THE INSECTS WITH GLUCOSE OR SYRUP.

The bee-keepers of North America, who are meeting in the ladies' ordinary of the Commercial Hotel, are mighty clever people. They all seem to be wide-awake, and they make one think it's Sunday—not Sunday in Chicago, but Sunday in the old white meetin'-house, "jist acrost the creek over yander, fornest Hankses schoolhouse." They've all got their store-clothes on, and have a Sunday, clean-shaved upper lip, and their collars and shirts are snowy white—glossless and spotless like the newly fallen snow; not the yellowish, shiny things town laundries send home Saturday night.

Then they all seem to have that handiness with tools that was once the characteristic of Americans, but which is fast disappearing with the march of progress. They've all got that knack of making things, and they look at the new wrinkles in beehives with a keen appreciation of every bit of ingenious contrivance, and say, with a kind sort of envy, "Gosh! why didn't I think of that! Dod burn it all, ain't that cute?"

Then there were combs of delicious-looking honey, and one's mouth watered as he thought of how a piece of hot light bread, spread with sweet butter and then some of that comb honey,

crushed down on it and spread over in uneven billocks of lusciousness, would taste!

Then there were golden cups of pure extracted honey, some from the tiny nectar-tubes of the heads of white clover that scent the wide countryside in the sweet June weather, and some of a deeper yellow clarity from the basswood bloom, where the bees hang back and fight for the sweets.

There was one man there with a visored fur cap on, pushed back on his head, with strong wrinkles around his eyes because he has laughed so much all his life, and an even white set of teeth.

These old bee-keepers would walk up to him and ask: "Are you A. I. Root?"

"Yep."

"Well, howdy?" and the bee-keeper would jerk him by the hand with such fervor that one feared in the exuberance of his cordiality he would pull Mr. Root's arm out of the socket. But they never did.

Mr. Root is the proprietor of the largest manufactory of bee-keepers' supplies in the world.

To him a reporter for *The Mail* said:

"Do you have much trouble in competing with adulterated or artificial honey?"

"Artificial honey! My boy, did you ever eat any artificial strawberries or manufactured eggs? They used to say that they had egg-manufactured so that they would hatch out, but that the chicks had no feathers. And the newspapers had all sorts of pretty yarns about comb honey being manufactured. I have offered a prize of \$1000 for a piece of comb honey artificially manufactured; but, although the offer has been standing several years, the \$1000 is still there and our flag still floats. The strongest proof of this statement of mine is afforded by the present honey market. The drought of last summer has very much diminished the honey crop. Here was the opportunity of the honey-manufacturer. Why didn't he improve it? Simply because comb honey can't be made by man, but only by bees. About every attempt to adulterate extracted honey with glucose and sugar has been a financial failure too, and I am glad of it. A fraud ought to fail."

"Well, suppose the flowers don't bloom in the spring, and the bee-keeper puts out pans of sugar and syrups?"

"If he does, there will be sugar in the comb, not honey. Bees near a sorghum-factory will have sorghum molasses in their comb, and the peculiar twang is distinctly perceptible. Why, I knew where a man put out syrup for his bees, and in the making it was scorched a little. The honey tasted like scorched sugar, and that was all it was."

"The market is all cleaned up of old inferior stock, and those who by careful attention have a good crop have come out first rate."

"The heaviest crop of honey I ever had," said Dr. C. C. Miller, who is the president of the association, "was 16,549 pounds, and as nearly as I can estimate it took about seven million bees to make it for me."

This he said just a little while before he took the chair and called the meeting to order. He is a sturdy, strong, big-boned man, with a square, rugged face, and a strong beard that spreads out like that of Moses in the big illustrated family Bible. His upper lip is shaven smooth; and if he were not known to be a bee-keeper he might be taken for a presiding elder, or at least a local exhorter. The good man began the convention by offering up a short prayer to the Almighty.

Then he settled back in his chair, and said: "The secretary will now read the meetings of the last minute."

Then there was silence in the room for the space of a minute, when a bright-eyed old gentleman from Joe Daviess County saw the joke and smiled. Dr. Miller saw it too, and said: "Well, as my little boy says, 'I made up a blunder, didn't I? Now, in order to choke of the secretary, as you've all read the reports of last year's proceedings, it will be in order to move the suspension of their reading.'"

This was done, amid the blank looks of the secretary.

Now, friends, inasmuch as the *American Bee Journal* contains a full report of pretty much all the proceedings of the convention, I do not propose to give them here. I hope the greater part of our readers are taking

both the *A. B. J.* and GLEANINGS; and as it will not be very profitable for them to find the same matter occupying the same pages of each, I prefer to give you such random notes of the proceedings of the convention as may seem to me most valuable, taking into consideration the fact that you can get a copy of all the papers read, from the *A. B. J.* If you do not choose to take the latter, write for a single copy, costing but five cents. The copies for Nov. 23 and 30 will contain, I believe, the whole proceedings.

By the way, friend Newman has been for some time on the sick-list; and when he came into the convention it was evident to almost any one that his doctor was right in telling him he had better not go at all. After he had been among such a jolly set of men as we were, however, for a few hours, he seemed to be gradually looking up a little; and on the last day of the convention he was decidedly better. Who shall say it was not the effect of the inspiration that is always found, to a greater or less extent, in our national conventions?

Our friend C. C. Miller is a very good man to preside at the desk; and it pleased me exceedingly to hear him talk to us as if we were a lot of schoolchildren and he the schoolmaster.

"Gentlemen," said he, "you must not talk while somebody on the floor is talking." And although I wondered at the time whether he would carry it out as he had started, I found him fully up to the occasion. When we got excited in discussing very important questions, there was quite a temptation for somebody to whisper to his neighbor; and sometimes they got so much absorbed in their whispering that they did not hear the president's general request. At such times he called them by name, and made them behave. It did not make any difference if it was Prof. Cook or the editor of a bee-journal; if he forgot himself, or if he did not remember himself, friend Miller called him to order by name. Some of us were a little inclined to feel hurt, I fear, once or twice; but we finally concluded, from Dr. Miller's kindly countenance, that he was an old hand at the business. He opened the meeting with prayer, as was told you, and I guess, the spirit of those morning prayers went with us clear through every day's deliberations.

Sometimes even the best of us fall into a notion that the way to do duty is to stay at home and mind our own business; and this feeling, no doubt, has kept a good many from attending conventions. Some have suggested that our books and bee-journals contain the summing-up of every thing that is important; but I tell you, it is a mistake. Let me illustrate:

Some time during the convention the matter came up that has been recently started by J. A. Green (see page 764). Well, after a good many discussions in reference to the matter, the president finally asked all those who were satisfied that full-sized starters of foundation in sections would really produce more and better honey than even good-sized starters of clean

white natural comb, to rise up. Now, from the discussions we had had, I thought the opinions would be about equally divided; but a rising vote greatly astonished, I think, the most of us. Almost every one present had been slowly coming to the conclusion that it does not pay to save our unfinished sections for filling cases another year. Our teaching has been so much to the contrary—in fact, almost any one would say that even common sense was to the contrary—that at first there seemed no explanation for it. It was really amusing and funny to see fact after fact come forward. You may say these facts might have been given in the bee-journals. True; but we could not make the giver of the facts stand up and answer questions; neither could you call for a rising vote through the journals—that is, without waiting for a couple of weeks or more. After asking several more questions of different ones present, I became satisfied that I had got hold of some loose threads leading to an important fact; and as this matter is one of great moment to us I will try to give the conclusions here as I did during the convention.

WHY BEES CAN STORE HONEY FASTER WHEN FURNISHED WITH FOUNDATION, THAN WHEN FURNISHED WITH EMPTY COMBS.

Most honey, as it comes from the flowers, is not honey really, but what may be called nectar, or sweetened water. If you raise a frame of comb during a flow of honey, the newly gathered nectar will often run out itself, when the comb is turned up sidewise. I have learned this to my sorrow, by tipping up such combs when I had on my Sunday clothes. I do not want you to think that I open the hives on Sunday, dear friends, but sometimes I have on my Sunday clothes on week-days. At such times, if I open beehives I am sure to get daubed if honey is coming in briskly. Well, the only way the bees can manage to make this nectar into thick honey is by evaporating it to the proper consistency. This evaporation is produced by sending a stream of air through the hive. The air passing over these cells of nectar carries off the moisture. When we first commenced drying lumber by means of a steam dry-kiln, we were foolish enough to think that hot steam-pipes would dry lumber, even if there were no draft of air through the dry-kiln. We were badly mistaken, however. To dry lumber, you must pass hot dry air on both sides of the boards; and when this hot air has become charged with moisture, it must be sent out of the dry-house, and some more brought in. So you want a regular blast to dry your boards. This blast must also go between every two boards. Well, now, the blast of the bee-hive, to evaporate the nectar, must pass close to the surface of the nectar. Where bees have full sheets of foundation to start on, they raise the cells a very little. Then they put in a drop of honey, or, rather, nectar. This nectar is put in until it is full, up with the cell-walls, or perhaps a little more. Who has not admired a new comb of foundation the first time it

contained honey? If held up so that the sun strikes it at the proper angle, each cell is a sparkling little mirror, something like the dew-drops on a blade of grass; but these mirrors are so nearly level with the top of the cell that the whole surface looks like a sheet of nectar, each separated by the beautiful lacework formed by the cell-walls. In this condition they can evaporate out the moisture, or ripen honey very rapidly. Now, when the honey gets thick in these shallow cells, the cell-walls are raised a little more, and some more nectar put in; and in this way the honey and the cell-walls rise together; and this honey will be ready to cap far in advance of the honey that was stored in a deep cell, made the season before. Friend Muth, of Cincinnati, told us some time ago that bees would ripen honey and seal up the sections a good deal quicker with narrow sections than they would with sections two inches thick; that is, it is more profitable to produce honey in thin sections than in thick ones. He gave, as a reason, that it takes a good deal longer to evaporate the honey to the proper consistency in the deep cells. This also explains another fact that was brought out by quite a number of the bee-friends—that sections, produced by filling combs built the previous season, were more apt to sweat. The honey would be watery, and moisture would be seen on the surface of the comb, spoiling its beauty. Please notice, if you give the bees a section full of empty comb, the comb being perhaps two inches thick, they are obliged to put their thin watery nectar clear down to the bottom of these deep cells. Now, how are they going to evaporate this nectar in such a predicament as that?

President Miller, however, and several others, still insisted that the bees would go right up and commence on a section containing clean white natural comb, quicker than they would on a super containing only sections filled with foundation. Several questions soon decided that this was a fact; that is, different witnesses testified in regard to the matter; and then it transpired, that, although the bees commence on these unfinished sections first, they are not finished, as a rule, as soon as are some containing only foundation, even though the bees commence work on the latter last. The conclusion seems to be this: Fill your supers with sections containing full sheets of thin foundation, but at the same time put one or two sections in the middle, containing good-sized starters of natural comb, or sections that had been partly filled the season before. Further than this, many large honey-raisers testified to the fact that we had better burn up our stock of sections than to use those containing deep comb, carried over from previous seasons. Friend Heddon said he had for some time been cutting out the comb, melting it up for wax, and using the sections for kindlings. It is true, not all present agreed to this, but the great majority did; and among these, those who raised honey largely. One friend said, so well had he become satisfied of this fact, that he had been cutting the cell-walls off so as to leave

only the base and a little more; and he found that sections thus treated were filled out and capped over exactly as well as those containing thin foundation, or may be a little better, because the bees found the base of the cells already finished. Friend Heddon admitted this, but reminded us that the labor of doing it is more than the section is worth, compared with the rapid means now at our command for filling sections with foundation.

In the same way, different subjects were discussed, and valuable truths brought out. But I shall not have room in this paper to give them all. They will be brought out as the subjects come up, in our future pages. It was in some respects a little hard for me to sit still so many hours; and I should doubtless have found it much more trying had it not been for the thorough shaking-up we all got every now and then by the good big laughs we had at some of the comicalities of the occasion. Books and journals can never take the place of the face-to-face meetings and acquaintanceship. But after having read a man's writings for years, we can enjoy ever so much more making a personal acquaintance. The friendships formed during these few days will doubtless last through life. Now, although I enjoyed the sessions, I was always glad when the adjournment came, because an adjournment gave me an opportunity—or, at least, I thought it would, for ransacking the suburbs of Chicago for greenhouses, cold-frames, and the like. In one way I was disappointed, and in another I was not. Friend Green was to pilot me, you know; but he said the greenhouses were so far out we could not much more than get to them before the convention would be assembled. I suggested street-cars. He replied, that we could get along faster by taking the cable cars.

"What do you mean by cable cars, friend Green?"

"Why, friend Root, haven't you seen our Chicago cable cars yet?"

I was obliged to admit that I hadn't; but in a few minutes more I was all eyes and ears, when a train of three cars came plunging around a corner at such a rate that I felt almost as did the Irishman when he first saw a locomotive. He and his companion concluded that it must be "a stame-boat spatherin' around to git to the wather." Now, the wonderful thing to me about these cable cars was, that there was not any locomotive, nor horse either. They just tore ahead, up street and down, through crowds and amidst vehicles, and crashed along, as it seemed to me, regardless of life or limb. But, strangely, by some twist or turn, everybody and every vehicle just succeeded in clearing their skirts and hind wheels. Friend Green told me I had better sit inside, in one of the rear cars, as the wind was quite cold. I replied, "No, sir, 'ee. You don't get me inside when there is so much that is wonderful and funny to be seen. I want to sit down by this man who pulls the levers, and look into this thing a little."

The cable cars are pulled, as their name implies, by a large wire cable that runs at a

tremendous speed underneath the roadway, just between the two tracks. A narrow slit in the pavement permits what is called a "gripper," that goes down in the center of the forward car, to grab hold of the wire cable. By moving a lever the driver makes this gripper grasp tightly or loosely the moving cable, and this pulls the car. In the crowded parts of the street he grips the cable a little, then loosens the grip, and puts on the brake, and then grips a little again, and so on. When he comes to a comparatively clear space, his lever is pushed home until the gripper grasps with a firm hold on the cable, and then, I tell you, but don't we just plunge ahead? It reminds one of digging his spurs in the sides of a high-mettled horse. The three coaches just leap, as it were; and when one is in a hurry (trying to make a greenhouse four or five miles away in a short time, for instance), isn't it satisfying to his feelings to be rushed ahead? Yes, and without a horse or locomotive to bother with! Why, you don't have to wait to get up motion, for the car comes up at full speed, almost, in an instant. Of course, they stop and start to let people off and on, as with ordinary street-cars; but the saving in time, as well as saving in speed, is immense. If the men who got up these cable cars had known *me*, they might have *known* the cable cars would captivate me entirely.

We rode about four miles in a brisk, cold wind; but the wind just made me feel happy, especially when I could see that machine work. At intervals we found men repairing the track and machinery, and caught glimpses under ground of the mechanism. At the end of four miles we were obliged to take a horse-car; but when the driver said there were no greenhouses short of three miles further, we decided we could not make it, and so we stepped on to the cable cars going in the other direction, and sped back to the convention. I had so entirely enjoyed my ride, however, that I was not sorry; and perhaps just here it may be well to tell you a little of Chicago. It seemed to me at the time I was there, that, in certain portions, there was more crowd and business than even in the city of New York. The streets are broader, and there is more room, and I should say better facilities in many respects for doing business. The stores are immense; and toward night, when it is time to set the electric lights going, it looks like a fairy scene. Notwithstanding the cold weather, the sidewalk on State Street was heaped with goods of various kinds; fruits, candies, toys, dry goods, jewelry, clothing, and every thing that man can think of or need was displayed in endless profusion. Brilliant placards, glittering with black ink on the whitest of paper, offered wonderful bargains at every step, and great multitudes surged to and fro, taking advantage of these bargains. The streets were even lighter than in the daytime, and one feels like rubbing his eyes, to be sure it is all real. I had fully as much trouble at the street-crossings as I did in New York. I should have mentioned, that the cable cars follow each other quite closely. One row goes down street, and the other up street. There is not any

clamping of horse-hoofs to warn you of their coming; no, not even any puffing of steam. The cars seemed so dangerous, that, even before they were on me, I jumped back in affright; but when I jumped back I got right before one coming another way, until the driver sounded his alarm-gong in a way that might have muddled the wits of almost anybody. By the time I got out of the way of both cable cars, I was right in front of a cab; and then, thinking the danger was over when I got out of the way of the cab, I jumped again for a place of safety, only to find myself almost right under the feet of a big dray-horse. Just as I began thinking there was no such thing as getting across at all, a great burly policeman looms up. Whenever I see these Chicago policemen I think of that passage in Genesis where it says, "There were giants in the earth in those days." I know the Bible critics used to pick at this passage, but I now concluded there was not any thing strange about it at all, for we have the same kind of chaps nowadays, and I think they must all have gone to Chicago to act as policemen. Well, this great giant was not a bad man at all; in fact, he looked so kind and pleasant that I was rather glad he happened to be just there. He raised his baton, and good-naturedly signaled to the drayman to hold on a bit. He did not say so, but I suppose he meant something like this: "Look here, friend: here is a country editor all the way from Ohio, who is not used to our ways. Just hold on a bit until he gets out of the way." If one stops here it stops a good many others, and so he was obliged to speak to the driver of another vehicle—"Hold a little, my friend! There, now move on! Now hold again—there! Now we are all right!"

Now, even though he was a big man, and had authority under his great big coat, he was as gentle as a father speaking to his children. If Huber had been driving a horse through a difficult passage I should not have spoken gentler to him than did this keeper of the peace in the great city speak to the busy throng. What wonderful beauty there is in seeing gentleness combined with power and authority!* "Lord, help!" wells up while I think of my own poor self in this respect.

These cable cars carry a man ten miles for a nickel. One of the great needs of civilization is to get around faster than one can do it on his feet. If I am correct, the cable cars furnish the cheapest mode of transportation yet known—half a cent a mile. But, more of this anon.

The daily papers of Chicago are a wonderful institution. Not only do they tell of all important movements going on throughout this great busy city, but they have a fashion of picturing people who come and talk at conventions. I have told you what appeared in the *Mail*, the first morning after the convention opened. The next morning the *Daily News* came out with a witty notice of the proceedings of the convention, con-

*Thinkest thou that I can not now pray to my Father, and he shall presently give me more than twelve legions of angels?—MATT. 26: 53.

taining five pictures of some of the prominent speakers. The reporter, who was, by the way, also an artist, sat at his table, and, without anybody's knowing it, sketched these individuals while they spoke or read. The sketch was brief, and yet had so much truth in it that it was a pleasant surprise. Of course, these sketches are not supposed to be anything like a faithful representation of our friends. They are sketched hastily, and the plates to print them in our great daily papers probably have to be made with still more haste. As a sample of what this work is like, we give you a couple of them which we have reproduced. The first



DR. MILLER, THE PRES.

one, you will know without my telling, probably, is Dr. C. C. Miller, the president. Very likely he was standing up and talking to us about *whispering* during the session, when the artist took him.

The other one I have selected among the five was of our friend Mr. M. M. Baldridge, formerly a valued contributor to the pages of the *American Bee Journal* and

somewhat for GLEANINGS.

Friend B. is one of the veterans in bee culture. When I first commenced reading on bees he was one of the live men, and was thoroughly posted up to the times. His great specialty has been retailing gilt-edge honey, both comb and extracted. In a private note just at hand he presents the following thoughts, which are in line with the paper he read while the artist sketched him.



M. M. BALDRIDGE.

Friend Root:—You have no idea, perhaps, how pleased I was to learn, at the Chicago Convention, that you had made the discovery that very low prices for honey do not materially *increase* the demand, and that reasonably *high* prices do not materially *lessen* the demand. That discovery was revealed to me by experience many years ago, and it has been of very great value to me. I have therefore never sold choice extracted honey to consumers for less than 20 cents per pound, except in a few rare cases, and but very little at so low a price as 20 cents. My general prices have ranged all the way from 20 to 32 cents per pound—having, some 15 years ago, sold hundreds of pounds at the latter price. My price two years ago was 26 cents per pound; but owing to the alleged big honey crop of a year ago I put down the price to 22 cents per pound. My present price is 24 cents net per pound, to consumers, for choice extracted honey, and I do not find it any trouble to get it. There is, of course, more or less snarling about the price;

but this must be expected, no matter whether the price be high or low. Some people are born with a fault-finding disposition, and it often hangs to them as long as they live. I make it an iron-clad rule never to sell extracted honey to consumers, at a less price per pound than for the same quality in the comb. In fact, my practice is to get a higher price for it. It is my experience, that the price asked for extracted honey indicates, in the minds of consumers, both its purity and quality. A low price for extracted honey, or a less price than is asked for comb honey, is very apt to create distrust on both points. As I am dealing exclusively in extracted honey, and with consumers, and have been for a series of years, it seems to me that my practice and experience are worth a careful consideration. What have you and others to say in reply to the foregoing? M. M. BALDRIDGE.

St. Charles, Ill., Nov., 1887.

And now, friends, while I have ever so much else to tell, I think I shall have to put it off till another time, and finish by saying,

To be continued.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

HOW WE KEEP THE RECORD OF OUR COLONIES.

WHILE we (my wife and I) were moving into our new house just completed, Mrs. Root, Jr., somewhat perplexed as to where she should put this or that thing, said in the presence of her mother-in-law, Mrs. Root, Sr., "Oh dear! it seems to me as if I *never* should get things in their proper places. I wish I knew where every thing ought to go." The elder Mrs. Root, having been through the same experience, said:

"I would not trouble myself, Lizzie, about the place of each article just now. Put them away where it will be handiest to you, and, after a while, things will adjust themselves to their proper places."

Two months have now elapsed—long enough to test the truth of the statement. Since then I have thought how true it is, that not only will things work themselves into their proper places (those most used nearest at hand), but certain lines of work call for and in time develop a system whereby the labor and mental force is reduced to a minimum. Take, for example, type-setting, and the arrangement of the boxes. The system, as unique as it is, was not planned before it was put into execution. Practical work and time evolved it into its present perfect form. So I think of any practical method for recording the condition of the hive. Our system of slate tablets, which I am now about to explain, was not the invention of any one of our apiarists, but is the result of their combined additions and subtractions, until time made it meet all requirements. Theory first made an outline of it; practice and actual work remodeled, and made it substantially as it is.

The same system, or essentially the same, may be in use elsewhere, where queen-rear-

ing is carried on, and it may be that you have a great deal better way, or it may be that you used slate tablets long before we did, and have abandoned them for something better.

For writing the record on the slates, we use a kind of short long-hand, whereby we stenographically, so to speak, take down on the little slates. By so doing we not only save space but time. It is all-important, that, when the hive has been examined, not a minute be wasted unnecessarily. While at school I acquired the art of taking down lecture-notes in short-hand characters; and when at home in the apiary I recorded on the slates the condition of the colony, in crooked marks. When I visited Mr. W. Z. Hutchinson a few years ago, if I remember rightly he informed me that he used short-hand to make his hive-records. But as my stenographic marks were intelligible to no one but myself, I had to abandon them, as none of my co-workers could tell what I had done with the hive. The tablet and the record, when completed for one queen, is something like this:

For the benefit of some of our new readers, I will remark that the actual size of the slate is $2\frac{3}{4}$ x $1\frac{1}{2}$ inches—about large enough to contain on one side the whole record of the queen. You observe that a hole is punched near one end, so that the tablet may be hung on one side of the hive. Those who have had our price list will remember having seen it illustrated.

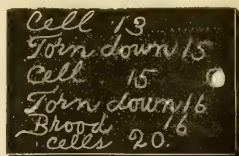
I shall now explain more at length just how we use it in queen-rearing. I will first ask you to read the tablet as given above, as far as you can. You say it is not very intelligible. You notice the words, "Cell, 6—19." This means, that on June 19th a cell from one of our best imported queens was slipped down between the frames, the latter being drawn together gently, so as to hold the cell suspended. In the next line you see, "Ht.—22." This, amplified, means that, on the 22d of June, when the hive was examined it was discovered that the queen was hatched, and that she was all right. You next find, "Laying, 7—2." On that date she probably commenced to lay eggs. She may have been laying before that. If so, we may find larvæ just hatched. We then date the slate three days before the examination was made. If the larvæ are older, the slate is dated accordingly. The reason of this is, that we may know just exactly when to expect young-hatching bees; to wit, 21 days after. Three weeks, however, is not sufficient time to test the queen. Accordingly, we allow from a month to six weeks to learn of the purity of the progeny.

Lower down on the slate you notice, "Tested, 8—15." At this time the queen is pronounced pure. Over the whole you notice a large figure 9. This indicates, that on the 9th day of September the queen was sold. When the queen is taken out, the hive closed, and the large figure 9 inscribed

on the slate, the latter is laid on the hive. The slate on top is conspicuous, and indicates that the hive is queenless, and that it must not remain in that condition over a day, or three days at the utmost. For instance, we will suppose that we have filled twelve orders from the apiary, each taking a queen. A bird's-eye view reveals the slates, shows just where all those colonies now queenless are, and what kind of a queen they had originally.

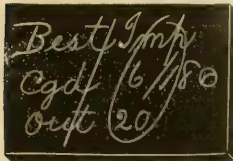
But, to return. You may perhaps inquire why we omit the word "sold." It is understood from the size of the date. Why the date enlarged? Because it is important. If the colony should fail to raise a queen from the cell given, it is essential to know just how long said colony has been queenless. Another thing: The large figure can be seen quite a little distance when on top. Circumstances may be such that there are a limited number of cells on hand—not enough to supply all the colonies from which queens have been taken for two or three days. What cells we do have should be given to the colonies that have been queenless the longest, and the large date stands out so conspicuous that it is not necessary to strain or squint the eyes, as the slates on the cover are examined one by one.

Let us next examine the scribbling on another tablet. In passing through the apiary with a basket containing my cells which I am to insert into those colonies which have slates on the hives, I commence to insert them as I have just described. Having closed the hive, I mark the slate "Cell 13," thus:



When the figure is given alone, the month in which the operation was performed is understood. On the 15th I go through all the hives where I put in cells, to see if any of them have been torn down. Examination in one colony shows that the cell has been gnawed into, and its general appearance satisfies me that the queen did not hatch, and so I mark, "Torn down, 15." It may be possible that I do not have a cell with me. If so, I lay the slate on top of the hive, for the colony, to all intents and purposes, is still queenless, because it is not in condition to supply itself with a queen from imported stock. On the same day, the 15th, toward night, we will say, I return to insert a cell, and mark as before, "Cell 15." On the 16th the cell is again torn down. Rather than fuss with them any more, I take away all the unsealed brood they may have, if any, and give them a frame of young larvæ from a select imported queen, and make them raise cells for themselves. Nine days from the time the brood was given them, or on the 25th of the same month, I am to go with a queen-cell knife and cut out the cells, leaving one in the hive to hatch. The others are to be distributed in the manner I have indicated. "Cells, 20," shows that on that date I found that the unruly colony was progressing all right.

Next, let us take one more example. We have just received a consignment of imported queens, from Italy. Having put them into the Peet introducing-cage we next place them in the hives. The slate of the first colony so treated is marked, "Best imp.



egd. 6-18." In other words, on the 18th of June we caged an imported queen. Two days afterward, or on the 20th, she is found in the hive all right, laying, and the slate is marked, "Out. 20,"

which signifies that the bees have gnawed the comb away from under the cage, and the queen is liberated, or "out." Again, you will notice the figure 10 marked clear across the slate. As before, this indicates that the queen was sold on the 10th of the next month. If the queen produces nice bees, gentle, and otherwise all right, the slate, instead of being placed on the hive-cover as in the former case, is hung back on the nail. This means, that nine days from that date we may expect to cut out the cells from that hive. As a general rule, we prefer to have cells raised in full colonies, so you see the thing works of itself.

SLATES ON TOP OF THE HIVES.

Now, a word more in regard to the significance of the slate on top of the hive. So placed, it always means the hives require immediate attention, or, in general, that something is wanting. For instance, in the daily routine at the apiary it is discovered that fertile workers have got started in a colony which has a dash of Holy-Land bees among them. For obvious reasons, it is not convenient to give them just such attention as they require at that time. The slate is taken off the nail and put on top of the hive. Over yonder is a colony that acts very curiously, and ought for a time to be examined quite closely. This slate is also put on the hive. Here, again, we find a colony that has been allowed to build burr-combs on a honey-board or mat. Just at this time we don't happen to have a knife and platter. The hive is hastily closed, and the slate put on top.

If there are very many slates on the hives it indicates that there is plenty of work to be done, and that the colonies thus distinguished from the others should be carefully watched, that they do not get into mischief. It always makes me feel real good to go out into the apiary in the height of the queen-rearing business, and see few if any slates on top of the hives; and when every slate is off we congratulate ourselves on being able to keep our apiary in such good shape.

The ordinary records are made with a common slate-pencil, and it will remain distinct for from a month to six weeks. If we desire it to remain longer, or if the record is an important one, such as that of an imported queen, we always use a red lead-pencil, such as can be purchased at any stationery store. These red marks will keep their place on the slate through all kinds of weather for as long a period as even a year. The slate-pencil is used only in keeping a

record of cell-raising, untested queens, and where it is not necessary to keep the pedigree.

I have shown you only two or three slates representing our method of keeping records. Of course, we have other facts to record, and other forms of abbreviation. No matter in what condition the hive is found, you can write it down in full if you like, and so the system can be extended indefinitely.

On page 886 of this issue will be found something further on this subject; viz., the book versus the slate method of keeping the record of hives.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 1, 1887.

Then said Jesus unto him, Put up again thy sword into his place: for all they that take the sword shall perish with the sword.—MATT. 26:52.

THE number of subscribers up to-date is 7691 — a gain of 49. Thanks.

HONEY-CANS THAT CAN BE OPENED OR CLOSED
IN A SECOND, AND YET BE ABSOLUTELY
HONEY-TIGHT.

THESE new can-tops have finally been received from England; and the best way to explain to you this very ingenious invention will be to send you a can-top and cover by mail, together with prices of cans in the flat, and cans made up. For the above, postage and all, we shall have to charge about 5 cents.

SHIPPING HONEY TO COMMISSION MEN, WITHOUT
PREVIOUS CORRESPONDENCE.

We have before had complaints similar to the following:—

My advertisement in GLEANINGS is bringing me more comb honey than I can possibly handle in this city, without breaking the market and slaughtering. Will you kindly warn bee-men not to ship honey to any commission men without previous correspondence, as it is a loss to them and an annoyance to me and others like me who want to do justice to their consignors. —ARTHUR TORRE.

It is very unwise indeed to send any thing to a commission man without first writing to him, and getting his advice and consent. Where circumstances are very urgent — say where property is perishable, and it can not be kept, it may do; but remember, it is always at your own risk. We once tried shipping a lot of cabbages in this way, and they sold for just enough to pay for freight and cartage—nothing more.

PRICE LISTS PRINTED AT THIS OFFICE.

We have just gotten out a 20-page circular and club list of all the leading papers of the United States and Canada, for C. M. Goodspeed, Thorn Hill, Onondaga Co., N. Y. Friend G. advertises, also, garden-seeds, poultry, strawberry-plants, and bees. We have also received the manuscript for a 20-page circular of bee-supplies from P. L. Viallon, Bayou

Goula, Iberville Par., La. If you wish to catch the trade for next season, you should get out your circulars early. We have excellent facilities for doing price-list work. At no other office will you find such a complete line of electrotypes pertaining to bees. Write us for prices on circulars which you may propose to get out for next season.

QUESTIONS FOR THE QUESTION-BOX DEPARTMENT.

We have received a large number of queries, and some have requested that they be inserted in next issue. Of course, this is impossible. A list of questions must be, in many cases, reworded, abbreviated, then sent out and returned, after which each must take its turn. We are sorry to say that some queries sent in "For Question-Box" can not receive insertion, either from lack of importance or because the point concerning which information is desired is fully answered in the text-books. But the friends may rest assured that all their questions will receive some sort of answer. If the question is hardly suitable for the Question-Box Department it will be answered in GLEANINGS by the editor, or by private letter. If you do not get any kind of answer, write us again and we will make haste to reply.

QUEENS DURING THE WINTER.

INSTEAD of sending your orders to us for the next three months, please send them to Miss Nellie Adams, Sorrento, Fla. She was formerly in our employ, and understands our ways and methods, and we can recommend her with the utmost confidence. Whatever deal you may have with the lady, if she does not make it all satisfactory we will. If she has more orders that she can fill, we hope some other enterprising queen-breeder in the South will take hold and help; and I think it would be a good idea for those who have queens on hand, ready to ship, in the extreme South, to make it known by an advertisement. Let the advertisement read: "Untested queens, ready to ship by first mail." It is not very likely that many will want queens during the winter, in the Northern States; but a large part of our trade has usually been from the South, and a good deal from the extreme South. Now, is there any reason why our friends, in localities where the bees are flying almost every day, should not have queens in the winter months as well as in summer?

SPECIAL NOTICES.

DISCOUNTS FOR DECEMBER.

During the month of December we will allow 5% discount from all articles in our catalogue. This is an inducement for you to order your next year's supply now, and not wait till spring, when we are crowded with orders. Of course, we are glad to get orders any time, but we like them a little better now, when we are not so crowded, and can give them our very best attention. Remember, the discount grows less the longer you wait. January discount will be 4%; Feb., 3%. After Feb., no discount.

LITHOGRAPH LABELS AT \$2.00 PER 1000.

When Mr. James Abbott, of London, Eng., was with us a year ago, he had samples of a very neat lithograph label, oblong in shape, measuring 2½ x 2½. We mentioned them at the time in GLEANINGS, agreeing to send samples as soon as we received them. Well, they have just come to hand, although we ordered 50,000 over a year ago. They are about

the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 40 cts. for 100; \$1.25 for 500; \$2.00 for 1000.

You have **NO IDEA** how nice the
BEE-KEEPER'S MAGAZINE
is. Why not send for sample and see? Address
BARRYTOWN, N. Y.
FREE *

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfbd

I could sell Maple Sugar; to my honey customers, consign me some. **ARTHUR TODD,**
22d 2122 N. Front St., Philadelphia, Pa.

APIARY FOR SALE.

I am offering for sale one of the best locations for bee-keeping, in the famous
SHENANDOAH VALLEY.

Ten acres of ground, splendid house, stable and out-buildings, all new; also a carp-pond of about one acre; never-failing spring of excellent water; plenty of fruit, 3 miles from Martinsburg, W. Va.

Write for further particulars. **PAUL PEINE,**
Martinsburg, W. Va. 23-24-1 d.



LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends everything. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; \$7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; \$1.10 for 10; \$10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for \$1.50; 100 for \$14.00; ½-pint tin cans, no brush, 25 cts.; \$2.20 for 10; \$21.00 per 100.

A. I. ROOT, Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

I received the 16-inch saw some time ago, but I did not try it until to-day. I must say it works well, and stands up to its work beautifully, and holds a good edge. The 6-inch wrench is a fine thing. **J. R. MCCLYMONDS.**

Pleasant Hill, Pa., Sept. 23, 1887.

WHAT A BEE-HOME THINKS, WHO HAS VISITED THE HOME OF THE HONEY-BEES.

I shall always remember the hearty welcome you gave me, and the trouble you went to in showing me through the many different departments, and at the same time explaining all to me. To say the manufacturing shops alone, with all the different machinery driven by the 90-horse-power engine, was a grand sight to me would be expressing it very lightly. I wish every reader of GLEANINGS could go and see for themselves. My advice to all who are in the bee and honey industry, and want to see a master bee-supply dealer, is, to visit A. I. Root. His employes show honesty and gentility in all their words and actions. Each has his allotted station, running like clockwork the great supply-manufactory—an establishment which never could be explained on paper. **A. C. FASSETT,**

Watson, Mich., Oct. 13, 1887.

SUPPLEMENT.



Vol. XV.

Supplement to Dec. 1, 1887.

No. 23.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.00; 3 for \$2.75, 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices NOT LESS than 90 cts. each. Sent postpaid, in the U.S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUR PREMIUM-LIST.

GLEANINGS, AND A LITTLE OF ITS HISTORY.

WE herewith present you with our Second Annual Premium-List and Supplement. A careful perusal will convince you that our terms are very liberal; and if you have any spare time at your disposal we hope you will see fit to avail yourself of some of the beautiful presents which we offer, and at the same time help to swell the subscription-list of GLEANINGS. Our journal has nearly completed its fifteenth year; and previous to the one now about to be closed, it never before received so liberal a patronage. To-day it has the largest number of subscribers it ever had before in its history; and, moreover, the list continues to be on the increase. A journal does well if it can hold its subscribers from year to year; but it does still better if it increases its number of patrons. What has given GLEANINGS IN BEE CULTURE a steady hold upon the bee-keepers? The answer is this: 1. We try to make it a good journal and a safe guide. As a means to this end, we secure the most *practical* writers we can find, and we pay them well. 2. We spare neither pains nor money on the mechanical and typographical work of the journal. The engravings in a single issue cost us, on an average, \$35.00. 3. We never *intentionally* allow any communication to enter our columns which will in any way injure or hurt the feelings of a brother bee-keeper or of a brother-editor. 4. We do not claim that our bee-journal is better than any other. Last, but by no means the least,

we try to live up to and carry forward the motto found on the cover-page: "Peace on earth and good will toward men." We hope this sentiment pervades our journal; and it is this more than any thing else that gives our journal a strong hold on its readers.

SUGGESTIONS TO AGENTS IN COLLECTING NAMES.

There are thousands of farmers who keep bees, some of them quite extensive bee-keepers, who are not subscribers to any bee-journal, and who, as a natural consequence, plod along in the old-fashioned ways of producing honey. Within a few miles of you you know of just such bee-keepers. It would be greatly to the advantage of such to become acquainted with the improved methods of honey-production. With this in view, influenced by the offers herein contained, you propose to devote a few of your spare hours to soliciting names.

When you start out, don't call upon your prospective subscriber when he is busy himself. Visit him when you think he will be at leisure; and if you find him not particularly occupied, tell him you are agent for GLEANINGS, and then upon the proper presentation of its merits say to him you would be pleased to take down his name. If he makes no objection, all well. After presenting the object of your business, don't urge when he has said no, or something to that effect. The point is, friends, we don't want you to shove GLEANINGS into the hands of one who evidently does not wish to take it; and, more than all, don't intrude upon his time, if by word or action he indicates his preference to be let alone.

PREMIUM RULES.

All collecting Premium names should read carefully the following rules:

1. You can close your list of names at any time, and call for the premiums due; or you can add to the list of names. But—

2. Send along the names as fast as gathered, so that the subscribers may begin to receive the journal at once. No subscriber under any circumstance must be received for less than \$1.00 per annum.

3. Mark every name or list of names, "*For Premiums*," if so intended, and we will credit them to the sender on our Premium Record.

4. Be sure to give the Name, Postoffice, County, and State, of each subscriber and of yourself.

5. All sample copies necessary to canvassers will be sent postpaid free.

6. When you order your premiums, be sure to state how to send.

7. To Foreign Readers. Mailable articles, not exceeding 8 ounces, go to Canada for 10 cts. per parcel; but packages exceeding 8½ oz. are excluded from the mails to Canada. To all foreign countries in the Postal Union, 18 cts. must accompany subscription for postage, and to all other foreign countries, 42 cts.

How to Send Money: Send money by P. O. order, registered letter, express money-order, on American Express Co., or get a N. Y. draft. For small sums of less than \$1.00, we will accept clean postage-stamps, but we prefer postal-notes, but can not be responsible for the loss of either.

OUR SPECIAL ARRANGEMENT

TO THOSE WHO WISH TO SECURE PREMIUMS FREE WITHOUT CANVASSING.

Some may not wish to canvass for names, but may be desirous of obtaining the premiums. To such we have decided to make this arrangement: You may extend your subscription to three, four, and five years, or more, by sending in the full amount for the time which you wish GLEANINGS to run. You can then select your premiums according to the number of years you subscribe. For instance, John Jones sends in \$6.00 for six years' subscription. His journal wrapper is marked to expire six years from date; to wit, Dec. 1, '93. In addition he is entitled to the premiums the same as if he had secured six new names. Let's see what John Jones makes out of the investment of \$6.00. He gets GLEANINGS for six years, and a Goshen carpet-sweeper, worth \$3.00. In other words, for loaning us \$6.00 for 6 years he gets in return \$9.00—pretty good, don't you think? Those of our subscribers who intend to remain with us ought to take advantage of this offer.

BOOKS! ÷ BOOKS! ÷ BOOKS! OUR SPECIAL OFFER.

FOR ONE NEW NAME AND ONE RENEWAL at one dollar each, we will send one of the following beautiful books, you paying postage, 12 cents extra, when sent by mail; or we will send them at 47 cents each, postpaid, or 12 cents less when sent with other goods. These books are beautifully bound in cloth, and most of them are embossed on the side and back in gold. They contain all the way from 200 to 700 pages, printed on excellent paper from good clear type. It is a splendid offer, as you will see. If you are a subscriber, and had intended to renew, practically you can obtain a valuable library-book for only one new name. The books are as follows:

Arabian Nights Entertainment; 450 pages. This is almost too well known to need any comment.

Children of the Abbey, by Roche; 646 pages. A very good and interesting story.

Dickens' History of England; 341 pages. Written by the very interesting author, Charles Dickens—a book of real value to old and young. It is written in simple language, and runs like a story.

Dickens' Shorter Stories; 350 pages of interesting and profitable reading-matter.

Half-Hours with Great Humorists.

Half-Hours with Great Novelists.

Half-Hours with Great Story-Tellers.

These three half-hour series are not as closely printed, and do not contain as much reading-matter for the money as the other works we offer, enumerated in this list, but nevertheless they are full of the pure gold.

Gulliver's Travels and Baron Munchausen, by

Swift and Rasz. Both of these works are comprised in one book. Gulliver's Travels was written by Jonathan Swift, born 1667, died 1745. The different parts of the book are usually considered satires on the royalty of his time, and on human nature in general. It will be better understood after reading W. M. Thackeray's Life of Swift. Baron Munchausen's wonderfully funny "yarns" will probably always be laughed at, as they seem so natural and yet so much exaggerated. He was a German soldier, and related his adventures so often that he finally believed them himself as related in the book. He died about 1795. As a work of the kind it stands alone, and will always be found in the libraries of men of learning and taste.

Ivanhoe, by Sir Walter Scott; 431 pages. This is one of the best productions of that great novelist—some say the best. Its scenes and incidents are taken during the period of the Crusades, and from its perusal the reader of the present day will get a

fair knowledge of the customs and times which took place at that period in the world's history.

Jane Eyre, by Charlotte Brontë; 379 pages. An exceedingly and thoroughly good story. If you have never read it you ought surely to do so, for you will be a better man or woman for having perused its pages. One of our office girls says she has read it three times, and is going to read it again.

Last Days of Pompeii, by Bulwer; 394 pages. This book will be read with considerable interest, now that the ancient city has been so thoroughly excavated as reported in the papers.

Last of the Mohicans, by Cooper; 358 pages—a pathetic story of the struggles of a dying race.

Oliver Twist; Italy and American Notes; 519 pages, by Dickens. We Americans can read this last book with profit, as it illustrates some of our national peculiarities as seen by one of the greatest observers of human nature—Charles Dickens. Still, it shows us the United States of 45 years ago, and not that of to-day.

Our Mutual Friend; Pickwick Papers; Martin Chuzzlewit, and others of Dickens' works. These are all good.

Paul and Virginia; Rasselas; and Vicar of Wakefield; by St. Pierre, Johnson, and Goldsmith, respectively.

Bunyan's Holy War; 318 pages—by John Bunyan.

Pilgrim's Progress; by John Bunyan—a book that has a circulation second only to the Bible, and translated into all languages which are written; 422 p.

Robinson Crusoe; 472 pages—a book so well known and so greatly prized by boys and girls.

Romola, by Elliott.

Scottish Chiefs, by Porter.

Sketch-Book, by Washington Irving; 374 pages.

A collection of fascinating sketches, mostly from English life, by the "Prince of American Letters." Rip Van Winkle is one of the stories.

We have also the following biographical works:

Life of Washington.

Life of Napoleon.

Life of Henry Clay; 423 pages.

Life of Zachary Taylor; 536 pages.

Life of John Quincy Adams; 404 pages.

Life of Patrick Henry; 468 pages.

Life of Andrew Jackson; 396 pages.

The subjects of these biographical sketches are too well known to need comment. They are just the works for young Americans to read.

Life, Speeches, and Memorials of Daniel Webster. A book of 552 pages, of surpassing interest to every boy who aspires to noble service of his country in an office of public trust.

Thaddeus of Warsaw, by Porter; 536 pages.

Cook's Voyages Around the World. A history of the thrilling adventures of that notable English explorer, Capt. Cook.

Don Quixote; 768 pages; by Miguel Cervantes, the Shakespeare of Spain. This is a splendid book for pastime reading when you feel tired and need a little amusement. It recounts the history of a certain ungainly, raw-boned, awkward knight, and his wonderful exploits and curious adventures. This is one of the largest books in the whole list. When, in the middle of the 16th century, the people of Spain had gone wild by reading books of knight-errantry, arising from the spirit of the Crusades, "Cervantes laughed Spain's chivalry away." Cervantes and Shakespeare both died Apr. 23, 1616.

Tom Brown's Schooldays at Rugby, by Hughes.

An interesting narrative of a boy's experience while away from home at college. In this single work, Mr. Hughes made for himself a name which will last as long as our language is spoken. When he visited America in 1869, the city of New York turned out to honor the author of "Tom Brown."

The Christian's Secret of a Happy Life; new edition, enlarged. This ought to be read by every Christian. It is written by one who is continually very near God.

First Steps for Little Feet, by the author of The Story of the Bible. This is one of the best books in the whole list, and every Christian parent should possess himself of a copy.

For the last two works, if you want to buy we shall have to charge 50 cts. each; postage on the first, 4c; on the latter, 6c.

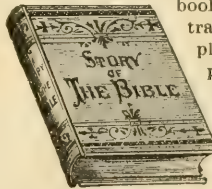
MORE SPECIAL OFFERS ON BOOKS.

GEIKE'S LIFE OF CHRIST. In this book we have a condensation of the scholarship of about 300 of the greatest writers on biblical matters,—German, French, and English. To read it is practically to walk and talk with the Christ of the gospels. With the hand of a master, Geike weaves this mass of scholarship into a fabric which is as interesting as any novel, and as full of information regarding things as they existed in the time of Jesus as any commentary can possibly be. Geike is a giant in intellectual scope, and thoroughly orthodox in teaching; but with all this, his style is simple and easy of comprehension. **GIVEN FOR TWO NEW NAMES AND YOUR OWN RENEWAL**, or sent postpaid for the price 70c, or 10c less when sent with other goods.

Ben Hur: a Tale of the Christ. By Gen. Lew Wallace. The great sale of this book places it as one of the greatest productions of the human mind. From the time the three wise men met in the desert to discuss the wonderful star they had seen in the east, till Christ died on Calvary, the reader is taken rapidly behind the scenes in pagan Rome; he views the races at Antioch, and the exclusive bigotry of the Jews at Jerusalem. It contains 566 pages, and should be read in connection with Geike's Life of Christ. Given for 4 new names, postpaid, or \$1.25.

Story of the Bible. This is a large nice new book of 700 pages and 274 illustrations. It is so plainly and pleasantly written that grown people, as well as children, will hardly want to lay it down. In the hard passages in the Bible, difficult to understand, it makes a commentary that will be thankfully received by some others besides children. For three new subscriptions at \$1.00 each, and 15c to pay postage, the above book will be sent free.

How to Keep Store. A nice new book of 406 pages. If I mistake not, there are not a few among our readers who will be delighted to get such a book. It embodies the conclusions of Thirty Years' Experience in Merchandising. Eighth edition printed in 1884. Any one who sells goods at retail will find it a boon. This book will be sent free for four new subscriptions at \$1.00 each, and 10c extra to pay postage.



BOOKS FOR BEE-KEEPERS.

THE A B C OF BEE CULTURE. By A. I. Root. This is a cyclopaedia of 330 pages, and is beautifully illustrated with about 250 engravings, many of them full page. Some of the latter embrace a view of the apiaries of some of our largest and most successful bee-men. The whole work is elegantly bound in cloth, 7 inches wide, 10½ inches long, and embossed on side and back in gold. It would be an ornament on the center-table of any bee-keeper's home. The entire work is brimful of contagious enthusiasm, and the style so simple and instructive, that even the more advanced bee-keeper as well as the beginner may find pleasure and profit in its perusal. Given for 3 new subscriptions to *GLEANINGS* at \$1.00 each, and 15 cts. to pay postage.

LANGSTROTH ON THE HONEY-BEE; by the pioneer of American bee-keeping, the Rev. L. L. Langstroth. This work is pleasantly and beautifully written; and although now behind the times, no student of bee-literature should fail to read it in connection with the more recent works on the subject. Given for six new names, or for the price, \$2.00, postpaid.

QUINBY'S NEW BEE-KEEPING. This was originally written by Moses Quinby; and this, together with Mr. Langstroth's work, first placed American bee-keeping upon a paying basis. More recently, Mr. Quinby's son-in-law, L. C. Root, revised and thoroughly rewrote the book, bringing it up within the present times. Mr. Root, like his father-in-law, made bees pay, and both are practical in their writings. Given for six new names, or for the price, \$1.50, postpaid.

MANUAL OF THE APIARY, by the well-known writer Prof. A. J. Cook. This work is so well known as to scarcely need any comment. It covers a very wide field in the range of apicultural matters—many of the subjects not being compassed elsewhere in any one work. The author, besides giving his own opinions, cites the opinions of many of our greatest writers on apiculture, so that the reader is not necessarily confined to the statement of the writer, or that of any other one man. Given for 3 new names, with 15 cts. to pay postage. Price \$1.10.

THE PRODUCTION OF COMB HONEY, by W. Z. Hutchinson. It tells how to produce comb honey without the use of foundation in the brood-chamber; a new work; price 25c, or it will be sent, postpaid, for one new name.

A YEAR AMONG THE BEES, by C. C. Miller. This is a little unpretending work of 100 pages. To say that the style is terse, clear, and even humorous in some places, is but speaking justly in its praise. It takes up the general routine of work with the bees through the whole year, as practiced and advised by C. C. Miller. Given for three new subscriptions, or for the price, 75 cents, postpaid.

SUCCESS IN BEE CULTURE, by James Heddon. The author is a terse, able writer, and has originated not a few ideas in regard to hives and hive manipulation. The subjects of contraction, inversion, honey-boards, surplus cases, with which Mr. Heddon has been more or less connected, together with his new hive and its use, are fully treated. Given for two new names, or for the price, 50 cents, postpaid.

MERRYBANKS AND HIS NEIGHBOR. This is a little book of 210 pages and 68 illustrations. The older readers of *GLEANINGS* will not need to be told what it is about. To our younger, or new readers, I will say that it is a book treating of bees (and hive-

making), gardening, maple-sugar making, and other rural industries. It has also a good deal to say about our homes, and was written specially for the juvenile readers of *GLEANINGS*. More than all, it treats of one particular home that was started on a sandy foundation, but eventually became builded on the rock Christ Jesus. Given for one new name or for the price, 25c. If wanted by mail, add 3c each for postage.

"BEES AND HONEY" is the title of a work on bee culture, by Thomas G. Newman, the editor of the *American Bee Journal*. It is written in Mr. Newman's usually vigorous style. Where one has little time to read, and does not care to peruse some of the more exhaustive treatises, this work will be about what he needs. Given for two new names, with 5 cts. extra for postage, or for the price, 75c., postpaid.

THE BEE-KEEPER'S HANDY BOOK. This work is written by Mr. Henry Alley, the veteran queen-breeder. Although it treats of general subjects connected with bees, it considers minutely the subject of Queen-Rearing, as practiced by the author. Given for 4 new names, postpaid, or for the price, \$1.10. If sent with other goods, 10 cts. less.

BEES AND BEE-KEEPING. This is a purely scientific work on bees. Its treatment of many of the subjects is masterly, and the investigations of the author with the microscope are interesting as well as new to most readers. The engravings representing the anatomy and physiological structure of the bee are some of the finest that have ever been produced. While many of us can not indorse or justify the course of Mr. Cheshire in so severely criticising the statements of some of the best authorities on bees, yet we feel that no bee-keeper who would be well informed upon all phases of this subject should fail to read this admirable work. Given for 7 new subscribers, postpaid, or for the price, \$2.50, or 14 cts. less when not sent by mail.

RURAL BOOKS.

REVIEWED AND DESCRIBED BY A. I. ROOT.
Postage: [Price without postage]

12 | Gardening for Profit..... 1 85

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. Given for 5 new names.

8 | Gardening for Young and Old..... 90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as to old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings. Given for 4 new names.

10 | Success in Market-Gardening..... 90

This is new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings. Given for 7 new names.

10 | Gardening for Pleasure..... 1 40

While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 216 pages and 134 illustrations. Given for 6 new names.

7 | Farm-Gardening and Seed-Growing..... 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages. Given for 4 new names.

10 | Farming for Boys..... 1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm life fascinating to any boy who has any sort of taste for gardening. Given for 5 new names.

10 | Irrigation for Farm, Garden, and Orchard. 1 50

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts. Given for 10 new names.

3 | The A B C of Potato Culture..... 35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.

Given for one new name and one renewal.

5 | Gregory on Cabbages; paper..... 25

5 | Gregory on Squashes; paper..... 25

5 | Gregory on Onions; paper..... 25

The above three books, by our friend Gregory, are almost worth their weight in gold. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business. I have read all three of them several times over, and I expect to read them perhaps several times again.

10 | Profits in Poultry..... 90

This comes from O. Judd & Co., and is, perhaps, the best thing out for the price, although we have poultry books without number. It is full of valuable instruction, and is not written in the interests of any particular establishment. It contains 256 pages and 92 illustrations. Given for 4 new names.

3 | An Egg-Farm..... 45

No matter whether you raise eggs on a large scale or a small scale, you can not afford to miss reading Friend Stoddard's book. I do not know that I ever got hold of any piece of fiction—not even Robinson Crusoe, that so thoroughly fascinated me as these chapters in regard to raising poultry on a large scale. The work has 95 pages and 42 illustrations. Given for 2 new names.

10 | Fuller's Grape Culturist..... 1 40

This is, perhaps, the most systematic, comprehensive, and thorough work on grape culture now in print; in fact, friend Fuller here tells us how, by easy steps, to make any grapevine come into the work, and make a pleasant, orderly appearance; and he makes it as attractive as a piece of fiction; and the best part of it is, that you get great crops of beautiful grapes during almost any kind of season. We have tested the system, and know whereof we speak.

Given for six new names.

10 | Household Conveniences..... 1 40

This is a book of 240 pages and 230 illustrations, and many of these illustrations ought to be worth the price of the book. It gives plans for obviating almost every difficulty or inconvenience that has to be met and mastered about the house and kitchen; and, furthermore, it is a wonderful helper in making home life attractive.

Given for 6 new names.

3 | Winter Care of Horses and Cattle..... 40

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages, and 4 cuts.

Given for 2 new names.

3 | Maple Sugar and the Sugar-Bush..... 35

By Prof. A. J. Cook. This was written in the spring of 1887, at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of our industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest sugar and maple syrup, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

8 | What to Do, and How to be Happy While Doing It..... 75

The above book, by A. I. Root, is a compilation of papers published in GLEANINGS IN BEE CULTURE in 1886 and '7. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is principally upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to anyone who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10 cts. respectively.

Paper-bound given for two new names, and cloth-bound for three new names, you paying postage.

Even though I put my own book last, I hardly feel like calling it less in value than some of the above; for I think it contains recent improvements and short cuts in market-gardening not to be found in any, not even in Peter Henderson's Gardening for Profit. Much of my work, however, remains to be tested more thoroughly, while Peter Henderson's teachings have already been the means of guiding thousands to a pleasant and profitable means of gaining a livelihood.

PREMIUMS FOR RENEWALS.

For one renewal, or your own name sent in before the subscription expires, we will send any one of the following presents, you paying postage as indicated. Those who had intended to renew should do so at once. If you do not care for any of the premiums below, perhaps you have little folks who will. Will the boys and girls send in their papa's renewals, accompanied with one dollar? Tell what present you select, and we will take pleasure in sending it. Remember the postage.

OUR LIST OF 10-CENT BOOKS.

HALF-HOURS WITH THE BIBLE. Size 6x8; 32 pages, with many pictures, and nicely colored stiff cover. A splendid Christmas book for the little folks. Six different subjects in the series, such as the Creation and the Deluge; Story of the Apostles; Jesus our Savior; Jesus our Example, etc. Postage 2 cents.

ONE-SYLLABLE PRIMER: 6x8; 48 pages, full of pictures; something that will always be wanted as long as there are children in our homes. Postage 3 cents.

POULTRY FOR PLEASURE AND PROFIT; 48 pages, and 20 illustrations. A complete little book of instructions. It treats of the best varieties for pleasure and profit; how to house and yard; how to manage; how to feed; diseases, incubation, etc. It is a 25-cent book; but by getting 1000 of them we can sell them for 10 cents. Postage 1 cent.

THE HORSE AND HIS DISEASES, by Dr. B. J. Kendall; 100 pages, and many illustrations. Over 500,000 of these books have been sold, because they are so popular and complete, for a small hand-book. It gives the symptoms of most diseases, and treatment for the same. This is another 25-cent book that we got down to a dime by taking 1000 of them. Postage 3 cents.

SILK AND THE SILKWORM. This is a complete work of instruction on silk culture, by Nellie Lincoln Rossiter, a practical silk culturist; 32 pages. Silk culture is the favorite pursuit of many ladies in our land; and all who are interested will find this little work very instructive. The price printed on it is 25 cents, but we sell them for 10 cents. Postage 1 cent.

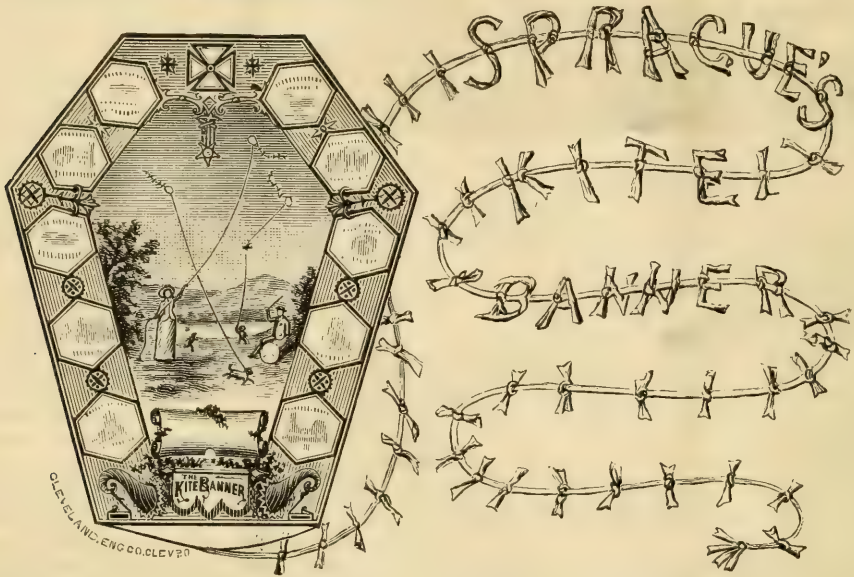
NEW TESTAMENT, NEW VERSION; 434 pages, printed in nonpareil type. This should be in the possession of every student of the New Testament. Even if it does not come into common use, it is helpful to know what changes in translation the New Version gives. Postage 5 cents.

JOHN PLOUGHMAN'S TALKS AND PICTURES, by Charles Spurgeon; 128 pages, and a picture on almost every page. John Ploughman talks plainly, and makes a good point in every talk. It is by no means dry reading, either. Postage 3 cents.

QUEENS AS PREMIUMS.

For the benefit of those who may prefer queens to any other presents we will make the following offer: For 10 new subscribers we will send, the first of next May, one of our best imported queens; for 6 new names, a select tested queen; for 4 new names, an untested. Remember, at this offer the queens are to be sent in May. If you desire to have the queen sent at any other month, write us. The names can be secured now, and sent in; but you must state at the time of sending, that in return you desire to draw a queen or queens, according to the terms of this offer. We will then book your order for next May.

MISCELLANEOUS ARTICLES.

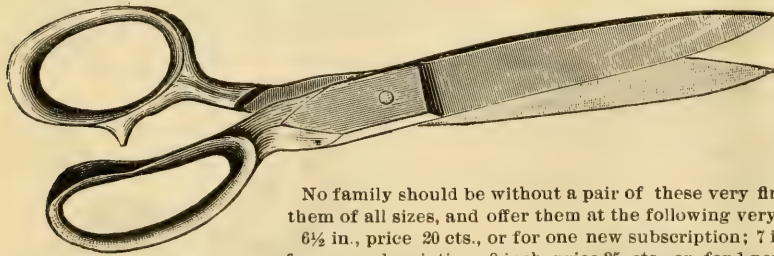


Kite, Complete. Price 10 cts. Postage 5 cts. Fun for the young folks. This is a splendid flying kite, and is sure to please. For one renewal, sent in *before* the time expires for which it is paid, and five cents for postage, we will send a kite free; or we will send one postpaid for one new subscription at \$1.00. Here is a rare chance for the boys to get a beautiful present free. Remember to send in your papa's name *early*.



is exact size. Price 35 cts.; postage 6 cts. extra. Will be sent for 1 new name and one renewal.

Tool-Handle, or Pocket Tool-Chest. An iron handle with 12 tools inside, which can be taken out, and any one adjusted to the handle. The tools are 6 assorted-sized brad-awls, 2 gimlets, 1 drill, 1 reamer, 1 scratch-awl, and 1 screw-driver. A very handy tool for many purposes. The adjoining cut

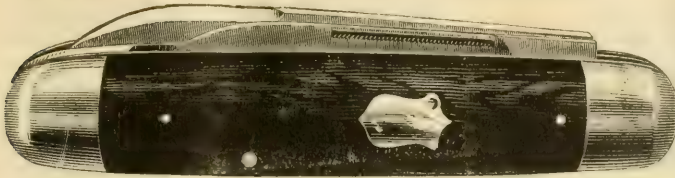


**NICKEL-PLATED
SHEARS,
SOLID STEEL
BLADES.**

No family should be without a pair of these very fine goods. We have them of all sizes, and offer them at the following very low rates: 6½ in., price 20 cts., or for one new subscription; 7 in., price 25 cents, or for one subscription; 8 inch, price 35 cts., or for 1 new and 1 old name. 9 inch, price 50 cts., or for 2 new subscriptions and one renewal; 10 inch, price 75 cts., or for 3 new subscriptions. Postage extra, as follows: 4, 5, 6, 7, and 8 cents respectively. Bear in mind that these shears are not cheap in quality, but are *hand-forged, and of the best steel, nicked over*.

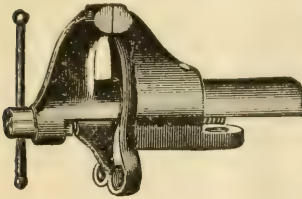


Adjustable Pocket-Wrench. The accompanying cut represents one of the best little tools offered in the whole list. The wrench is well made. It will take any size nut as large as an inch and under. The want of such a tool costs many times its price, especially when your team and hired man are standing idle just because one little nut is loose. Given for *one renewal*, before your subscription expires, you paying postage of 6 cts., or for the small price of 10 cts.



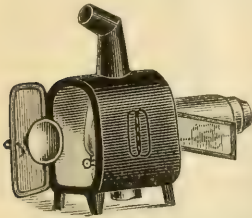
Knife, Excelsior. Razor steel, hand-forged, brass-lined, two German-silver tips and ebony handle. This is the very best knife we keep. It is just the thing for farmers and others who desire a really serviceable strong knife. This knife

sells elsewhere for a dollar. Our price is only 50c. For 2 new subscriptions at \$1.00, and 5 cts. to pay postage, we will send the above knife free.



AMATEUR BENCH-VICE. This is a little beauty, and wonderfully handy for any one who likes to fix things up. The jaws are 1 inch wide, and the vise is 3 in. long.

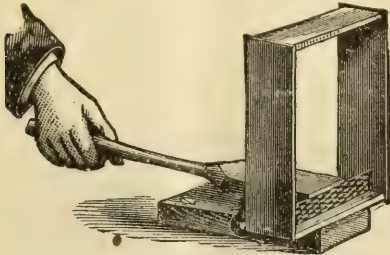
For one new subscription, we will mail the above free. Price 15 cents. Postage, 6 cents.



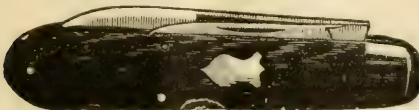
MAGIC LANTERN.

Price \$1.00. This is the same kind of a lantern that sold for \$3.00 a few years ago. It has a tin lamp with glass chimney, a reflector, smoke-stack, and 2 lenses. It includes 12 slides, with four pictures on

each, or 48 pictures in all. There is hardly any thing in the whole list that will please the little folks more than this. Directions accompany each lantern. For 4 new subscriptions at \$1.00 each, we will send it free. It can not be sent safely by mail, and will therefore have to go by freight or express, with other goods.



Parker's Fdn. Fastener. Price 25 cts. For fastening starters in sections. By far the most in use of any kind made. For one new subscription at \$1.00, and 10c. for postage, we will mail one free.



Knife, Razor Steel. $3\frac{1}{2}$ in. long when closed. This is best hand-forged, and is so well liked that we have sold over 100 dozen of them. Price 35 cts., or we will send one free to the person sending us one new subscription at \$1.00, and 5 cts. extra to pay postage and packing.

Knife, Two Blade. This is a very good razor-steel knife, not quite as large as our 35-ct. knife. Price 25 cts. Will be sent for one new subscription at \$1.00, and 4 cts. extra to pay postage.

BULL'S-EYE DARK-LANTERN. Price 15 c. Postage, 10.



A genuine watchman's dark-lantern, made of japanned tin, $4\frac{1}{2}$ in. high, and $2\frac{1}{2}$ in. in diameter; a bull's-eye glass, 2 in. across, and double handle on opposite side. Will throw a red, green, or white light. Will be sent free, postpaid, to any person sending

one new subscription at \$1.00.

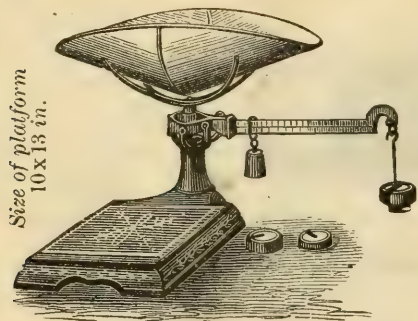


Fountain Pump, or Sprinkler. Price \$1.00.

A very useful and serviceable article about any house. It will throw a stream of water, $\frac{3}{8}$ inch in diameter, to the height of 50 feet, and is very effective for putting out fires or arresting swarms. It has also a spray nozzle for watering plants, etc. It is just the thing for washing windows or white-washing poultry-houses; 500 sold in less than a year. We will send one free to the person sending 3 new subscriptions at \$1.00 each. If you want it by mail, send 60 cents extra for postage and packing.



Little Detective Scales. A perfectly reliable scale, weighing from $\frac{1}{2}$ ounce to 25 lbs., making it invaluable for family use, and for weighing mail-matter. In fact, it is used largely by postmasters throughout the U. S. It has steel bearings and brass beam. Reduced price \$2 00, or we will send it free for 7 new subscriptions at \$1.00 each. With tin scoop, 50 cts. additional, or for 9 new subscriptions.



244-1b. Platform Scale. Price \$3.50. A much larger scale, weighing from $\frac{1}{4}$ oz. to 244 lbs. Has both platform and tin scoop. Has steel bearings and brass beam. Chatillon's make. We have sold nearly 200 of these the past season. We will send this scale free for 12 new subscriptions at \$1.00 each. It weighs 45 lbs., boxed ready to ship.



HUNTER'S SIFTER. This is a rotary flour and meal sifter, mixer, scoop, measure, weigher, egg-beater, rice washer, pumpkin, tomato, starch strainer, etc. Mrs. R. says she never knew any thing could be so handy. Given for one new name, with 16c. to pay postage, or for the price, 25c.

WIRE BRUSH. These are one of the nicest things ever invented. The bristles are wire teeth, and consequently answer the very excellent purpose of a comb and brush combined. If the hair on your head is contrary, and won't lie down, this is just what you need. For cleaning dandruff from the head, there is nothing better. They are useful to bee-keepers also, for uncapping foul brood, so that the carbolic acid, or the antiseptic, may come in direct contact with the diseased larvæ. Of these wire brushes, we have three kinds; viz., one which we sell for 15c., or will give for one renewal with postage added; one which we sell for 20c., or will send postpaid for one new name; a 25-cent brush, ebony finish, with back painted in colors, or will be given for one new name, postage added. Postage on each of the brushes is respectively 6, 7, and 8 cts.

Music-Box. Price 50 cts. Postage 10 cts. extra. We have again succeeded in getting a music-box that plays one tune, which we can sell for 50 cents. They are a splendid little instrument, and are usually sold for one dollar. For 2 new subscriptions at \$1.00 each and 10c for postage we will mail one free.



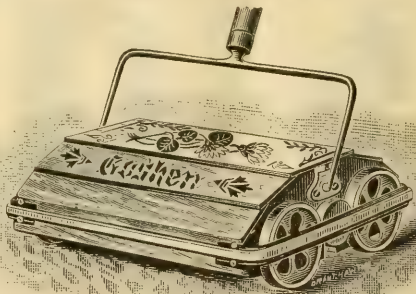
Telescope. Length when drawn out, 30 inches; when closed, 11 $\frac{1}{4}$ inches. It has 4 lenses, two dust-protectors, and magnifies about ten diameters. This is not a cheap toy affair, but on the contrary is a good serviceable instrument. With it, on a clear day, you can recognize a friend a mile away. Given for 2 new names, postpaid; or for the price, 50c. If sent by mail, 7c extra.

Carpet-Sweepers.

I believe there is no further question but that the latest improved carpet-sweepers are one of the greatest helps in the home circle that have ever been given the mother of the household. They will gather up litter that can not well be taken up with the broom at all, and the amount of work accomplished in a few minutes compared with the labor of the broom is wonderful; neither does it require a skilled woman or strong muscles, for almost any child will learn to run the sweeper in a little time, and it works so easy they consider it but pastime. After trying several makes of carpet-sweepers in our household, we have settled upon the two mentioned below as being by far the best.



THE LADIES' FRIEND, \$2.00.



THE GOSHEN SWEEPER, \$3.00.

The workmanship of the latter is the same, except that the higher-priced one is better finished, has a rubber-band clear around the outside, so even the children won't bump the furniture, and it has four rubber-tire drive-wheels, making it run very easily. The cheaper one is, however, the kind that we have had in our household for a good many years. The Ladies' Friend will be given for 4 new names or for the price, \$2.00. The Goshen sweeper will be sent for 6 new names, or for \$3.00. Neither of the sweepers can be sent by mail.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. Of course, this department is intended only for bona-fide exchanges.

WANTED.—To exchange High-Class Fowls, eight varieties, for good type-writer or foundation. Circulars free. 14tfdb A. H. DUFF, Creighton, O.

WANTED.—To exchange Wheeler & Wilson sewing-machines (new) for honey, bees, or supplies. J. A. GREEN, Dayton, Ill. 20tfdb

WANTED.—Situation for 1888, by an expert bee-keeper. Address FRANK CURT, Box 62, East St. Louis, Ill. 20tfdb

WANTED.—To exchange back volumes of GLEANINGS and Am. Bee Journal, for wax. W. H. HUSE, Manchester, N. H.

WANTED.—To exchange foundation at 30 cts. per lb., for beeswax. B. CHASE, Earlville, N. Y.

WANTED.—To exchange one or two Barnes Foot-power saws, one new, and the other as good as new, for honey, wax, alsike clover, or buckwheat. Make offers. Address J. NYSEWANDER, Des Moines, Iowa.

WANTED.—To exchange Ohio black-cap plants and Cuthberts, for sections or beeswax. JAMES HALLENBECK, Alamont, Alb. Co. N. Y. 24-2db

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Price of seed: 4 oz., \$1.00; 10 oz., \$2.00; 1 pound, \$3.00. Larger quantities by express, at reduced rates. Sow very early in the spring, or late in the fall. It vegetates in a low temperature. I have twelve acres that will bloom next spring. I shall sow two acres this fall. It is a success.

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Besides our beautiful eight-color chromo card, we have other neat designs, also a fine selection of fancy address cards, for old and young, for business and amusement. Also two and three letter monograms, all at low prices. See Here, 50 fancy printed cards, 15 cts.; 300 envelopes, 300 letter-heads, printed, \$1. Package 25 assorted cards, 10 cts. Neat box of cards and honey candies, 15 cts. Circulars free. Address J. H. MARTIN, Hartford, N. Y. 20tfdb

THE BEE-KEEPERS' REVIEW!

About Jan. 10, 1888, we expect to begin the publication of a 16-page monthly under the above title. As indicated by its name, one of its distinctive features will be the reviewing of current apicultural literature. Errors and fallacious ideas will be faithfully but courteously pointed out, while nothing valuable will be passed unnoticed. But few articles will be copied entire; but the ideas will be extracted, given in the fewest words possible, and commented upon when thought advisable. Another feature will be that of making each number, to a certain extent, what might be termed a special number. For instance, a large share of the correspondence, extracts, and editorials of the first number will be devoted to the subject of "Disturbing Bees in Winter." Our own apiary will, hereafter, be largely experimental, and of this our readers will have the benefit.

The price of the REVIEW will be 50 cts. per year; and, while we have not the slightest objection to receiving the subscription in advance, our only request is that each one interested will send his address, and allow Uncle Sam to hand him a copy of the first issue as soon as it is printed.

THE PRODUCTION OF COMB HONEY.

A neat little book of 45 pages; price 25 cts. The REVIEW and this book for 65 cts. Stamps taken, either U. S. or Canadian. Address

W. Z. HU CHINSON,
 Flint, Mich.

KIND WORDS FROM OUR CUSTOMERS.

I must say a few words of appreciation of the Home department in GLEANINGS. That part is always read first when GLEANINGS comes, and I think it does us more good than to listen to a sermon. May God bless you, friend Root, in your noble work of thus bringing sinners to repentance, and Christians to a closer walk with God. I would not do without GLEANINGS for three times its price.
 Iantha, Mo., Nov. 25, 1887. MRS. E. C. HARPER.

I receive GLEANINGS regularly, and read it with much profit. I consider it almost indispensable to modern apiculture. I am, also, one of your A B C pupils, having purchased a couple of swarms in June, that were obtained by dividing, and have depended upon your A B C book for information. They are in perfect condition for wintering, notwithstanding the unfavorable circumstances attending them—the lateness of the swarms, the excessive drought, and early frosts. G. SMITH.
 Alpha, O., Oct. 24, 1887.

THE HOME TALKS.

When I read your article on carp culture in GLEANINGS, Oct. 15, it gave me the carp-fever as bad as I ever had the bee-fever. I went to work almost immediately to see where and how I could make one. I suppose if you could see it you would call it a hole in the ground, instead of a pond. It is not done yet. I have been working at it to day. I find they are not made in a day.

Before I close I must say something about GLEANINGS. I can say, I think it is the best book or paper I ever saw published. When I go to get my mail, and I think GLEANINGS should be there, and it is not, I always feel disappointed, for I love to read it, especially Our Homes, and those who send in their testimony for Christ. It does me much good. It is only lately that I gave my whole heart to God, and I owe much of it to reading GLEANINGS. Somehow your talk seemed to have more effect on me than even a sermon from our preacher—it all is so simple, and yet so true. I pray that God may bless you in your good work, and give you many years yet to work in his vineyard. How I wish I could see you, and talk with you! I feel that it would do me much good. I ask you to remember me in your prayers, so if we do not meet in this world we may meet in heaven.

S. D. KELLER.

Winterburn, Pa., Nov. 29, 1887.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—Honey has been held too high here to sell, and this carries us over the best honey-selling period, not with much stock, because we have discouraged shipments, but without much business. Honey held at 18@20c is too high for its general consumption, in this age of good and cheap syrups. Further, the present practice of double glassing each comb is considered a fraud. Instance: Lately a customer bought of us some 2-lb. double-glassed combs at 16c. In a short time he brought back the frames and glasses, and weighed on our scales over $\frac{1}{4}$ lb. of glass and frame per single pound of honey; 2 lbs., frame and glass, weighed 0.556 lb., the whole tare considerably over one-quarter of the gross. This was over 22c per lb. for honey, and this purchaser considered himself swindled. We quote: 1-lb. sections, white, 15@16c; dark, and 2-lb. white, 10@14; strained, 8@10c.

Dec. 10. PANCOAST & GRIFFITHS,
122 Dock St., Philadelphia, Pa.

CINCINNATI.—*Honey.*—There is a quiet but fair demand for honey of all kinds. Extracted honey brings 4@9c on arrival; demand exceeds the arrivals. The demand for comb honey is rather tame. It brings 16@20c for best, in the jobbing way. Demand is good for beeswax, which brings 20@22c for good to choice yellow on arrival.

Dec. 12. CHAS. F. MUTH & SON,
Cincinnati, O.

CHICAGO.—*Honey.*—Movement of honey is very slow. The supply on the market is large, and prices about 18@20c for the best white comb in 1-lb. sections; 15@16c for 2-lbs., or thereabout. Extracted honey, 7@9c; supply is larger. Beeswax, 22@25c.

Dec. 10. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—The demand for 1-lb. sections is good; very little on the market. 1-lb. sections, white, 20@22c; dark, 15@17; 2 lbs., white, 18c; dark, 15@16; extracted, white, 6 $\frac{1}{2}$ @7; dark, 5@6.

Dec. 10. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

NEW YORK.—*Honey.*—The honey market is moving nicely in white goods. Fancy articles move fast, while mixed goods are not salable at any price.

Dec. 10. THURBER, WHYLAND & CO.,
New York City.

CLEVELAND.—*Honey.*—Honey has been very dull for the past two weeks. We are still holding the best white comb, 1-lb. sections, at 19@20 cts. per lb.; but large lots are being offered, and we think there must be a decline in the price, in order to make a better demand.

Dec. 10. A. C. KENDEL,
115 Ontario St., Cleveland, O.

ST. LOUIS.—*Honey.*—On account of high prices, honey is moving slow. Comb, choice white clover, 1-lb. sections, small way, 18c; lots, $\frac{1}{2}$ c less; California, 1-lb. sections, 17c; lots, $\frac{1}{2}$ c less; 2-lb. sections, $\frac{1}{2}$ c less than 1-lb. Lower grades of honey, as to quality, 20@7c less. Extracted honey, in cans, 6@8c, as to quality. Southern, in bbls., 4 $\frac{1}{2}$ @5c. Beeswax, prime, 20c.

Dec. 10. W. B. WESTCOTT & CO.,
St. Louis, Mo.

DETROIT.—*Honey.*—Arrivals of comb honey are just about equal to sales, and no change in price. There seems to be an improvement each year in the manner of putting up for market. Best comb, in 1-lb. sections, 17@18c. Extracted, 9@10. Beeswax, 21@23c.

Bell Branch, Mich., Dec. 10.

ST. LOUIS.—*Honey.*—We quote choice comb 16@18c; latter is for choice white clover in good condition, and in 1-lb. sections. Strained, in bbls., 4 $\frac{1}{2}$ @5 cts. Extra fancy, of bright color and in No. 1 packages, $\frac{1}{4}$ cent advance on above. Extracted, in bbls., 5 $\frac{1}{2}$ @6c; in cans, 7@8c. Beeswax, 20@2c for prime. Market very firm at above prices. Owing to the short crops reported everywhere, we look for a still further advance in prices.

Dec. 12. D. G. TUTT & CO.,
206 N. Commercial St., St. Louis, Mo.

ALBANY.—*Honey.*—Market quiet and firm for comb honey, all grades. Clover, 14@18c; mixed, 12@14; buckwheat, 11@13. Extracted, slow; clover, 7@8c; buckwheat, 5@7. Consignments solicited.

H. R. WRIGHT,
Dec. 9. 328 Broadway, Albany, N. Y.

BOSTON.—*Honey.*—Fancy one-pound comb, 18@20c; two-pound comb, 17@18c. Extracted, 7@8c. Sales are only fair.

BLAKE & RIPLEY,
Dec. 10. 57 Chatham St., Boston, Mass.

COLUMBUS.—*Honey.*—Not much change in prices of honey. Choice white clover brings 18@20c in 1-lb. sections; 2-lb. sections, 16@18c. No demand for lower grades. Beeswax, 20@25c.

EARLE CLICKENGER,
Dec. 10. 117 South 4th St., Columbus, Ohio.

KANSAS CITY.—*Honey.*—White 1-pound sections, 18@20c; 2 lbs., 16@18; 1 lb., dark, 16@18; extracted, white clover or basswood, 8@9; dark, in bbls., 3@5; California 1-lb. sections, white, 18@19c; 2 lbs. white, 18c; extracted, 8@9.

CLEMONS, CLOON & CO.,
Dec. 12. Kansas City, Mo.

FOR SALE.—I have about 600 lbs. of No. 1 extracted clover and linn honey, put up in Root's 58-lb. tin cans, which I will dispose of at 10c, cans and cases included, put on cars here. Sample for stamp.

L. I. TRIPP, Kalamazoo, Mich. Box 332.

FOR SALE.—216 lbs. of buckwheat and fall honey, and 96 lbs. of white honey, in 1-lb. boxes, in neat new 24-lb. cases, all for \$35.00, delivered at R. R. station. WM. VANAUKEN, Woodville, Jeff. Co., N. Y.

FOR SALE.—1600 lbs. honey, 250 lbs. ext'd, and 1350 lbs. of comb, all white. Write for prices.

Geo. A. WRIGHT, Glenwood, Susq. Co., Pa.

WANTED.—100 lbs. extracted white-clover honey, New York or Ohio preferred. Shall want more if quality and price are satisfactory. Address, with samples and price,

W. E. SKINNER,
Takoma Park, D. C.

American Club List,

THORN HILL, N. Y.,

NOW READY FOR 1888.

You want it! It will save you money on every paper you take. Address as above. 2-48d

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
See advertisement in another column. 3tfbd

FOR SALE IN CALIFORNIA!

On account of the death of the proprietor, J. D. Enas' ranch of 240 acres, part in fruit, 80 stands of bees, steam machinery for the manufacture of supplies, a well-established business; land will be sold in 40 or 80 acre tracts. Stock, farming implements, and a large stock of apianary supplies. For particulars address

MRS. J. D. ENAS,
29-6d Box 306. Napa City, Cal.

«NOTICE»

Italian queens, bee-hives, and supplies. We sell goods very low. Send for price list.

B. J. MILLER & SON.
NAPPANEE, IND.

FOR SALE—Semi-portable engine and boiler, nine-horse power; price \$250.00, on board cars. For further particulars, address

THOMAS GEDYE,
LaSalle, LaSalle Co., Ill.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.



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No. 24.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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SEPARATORS—WOOD OR TIN?

DR. MILLER CONSIDERS THE RELATIVE MERITS OF EACH.

OF late I have seen no discussion as to the relative merits of wood and tin for separators. I think it is pretty well agreed, that each one is best in its own place—wood for a loose separator, and tin for nailing. I have given both a pretty full trial. A wood separator nailed on a wide frame, although the grain allows it to make no sudden bend in the direction of its length, will make various curves in the direction of its width, making it difficult if not impossible to keep the wide frames as close together with wood as with tin.

Whether loose or nailed, tin has the advantage of taking up less room than wood; but the difference is not so great with separators 26 to the inch in thickness instead of 16 or 17, as I have heretofore used them. On the other hand, wood is warmer than tin, and this may make quite a difference in cool nights.

Where loose separators are used, as in T supers, great exactness of length is required, for the length can not, of course, be greater than the inside length of the super; and if it be an eighth of an inch less, the wall of the section being only an eighth of an inch thick, the separator may fail at one end to hold its place between the sections. Now, suppose there is a variation of $\frac{1}{8}$ of an inch in the length of the supers (and it will be pretty exact work if there isn't), it will readily be seen that a separator $\frac{1}{8}$ too short may spoil matters. Separators, whether of wood or tin, may be cut very exact in length, but the tin may very easily assume something of

the serpentine or wavy form in the direction of its length. From this, two evils result. First, the waving form lessens the length of the separator, so that it may become entirely too short. Second, wherever a wave occurs in the tin, the comb in the sections is built to correspond, making the sections untrue, one bulged, the other hollow. I have seen tin separators in a T super so shortened as to be $\frac{1}{4}$ to $\frac{1}{2}$ an inch out of place at one end. The stiffness prevents any thing of this kind in wood.

Tin is easier cleaned than wood, and at present prices I don't know that it pays to clean wood. Indeed, I think I shall hereafter use nothing but new wood separators, and, after using once, throw them away. It costs only one cent or less for each super (aside from freight), and with new separators it is so easy to put the sections in the super, and then they are kept so clean and nice that I think I can make more by using new than to clean up the old ones.

SECTIONS BUILT TO ONE SIDE.

Complaint has been made of sections so built as to be one-sided, and often attached to the separator. I think the sections will not be found attached to the separator unless foundation-starters of large size are used. The remedy is not easily found; but if I say what I think is the cause, it may help some one to suggest a remedy, for the difficulty is quite a serious one, occurring equally in wide frames or other supers. If bees have only a little honey to store, they are prone to continue storing in combs, or, indeed, in cells already started. Give, to a strong colony which is storing rapidly, starters of foundation two inches or more apart, with no separators, and full surface for attaching comb midway be-

tween the starters, and such comb is often started; but a colony storing slowly prefers to lengthen out the cells already started; whether on account of economy of wax or other reason, I can not say. So if they are working in the center sections of a super, when these are filled, or whenever they need more room, instead of commencing vigorously on both sides of the next starter, as would a strong colony storing rapidly, they commence on the side of the starter next to the cluster, or, at least, work most rapidly on that side. Now, the weight of the filled and constantly lengthening cells on the one side throws the soft, yielding foundation to the other side, giving room to lengthen the cells still more, and still more push the foundation to one side till the bees attach it to the separator. The only remedy I see is to reverse the position of the sections after well started; but this is too much trouble, leaving us at the mercy of the bees, unless we keep all colonies strong. C. C. MILLER.

Marengo, Ill.

You are probably correct as to what you say regarding the merits of the wood and tin separators. A few years ago we made and sold wood separators, but at that time there was not very much of a call for them. Since the T super has obtained so much favor, wooden separators will evidently come into more general demand. In anticipation of this we have set up our machine for shaving them out. We first made them as thin as 34 to the inch; but upon the advice of friend Miller and one of our local bee-keepers, we made them a little thicker, 26 to the inch. Now, it may be possible that we have them too thin yet; but if we cut them thicker we find it breaks the grain of the separator; aside from this, we believe there are some advantages in the use of thinner ones which will offset some of the advantages of the thicker ones. We have put the price at \$2.00 per 1000, \$1.25 for 500, 30 cents per 100—low enough so we think the bee-keeper can afford to throw them away and purchase new ones, as suggested by friend Miller.

SELLING EXTRACTED HONEY.

HOW DOOLITTLE DOES IT.

I AM asked by a subscriber of GLEANINGS to give my plans for selling extracted honey. First, we have our home trade, which is of a twofold nature—that which comes to the door, bringing pails, etc., and taking away the number of pounds called for. If this were only large enough to take all that could be raised, the bee-keeper might be perfectly happy when thinking along the line of disposing of his product; but as this is not often the case, we next take a sample and go around among our neighbors, leaving a sauce-dish full at every house, and informing them that we shall be around in a couple of days with the same honey for sale, giving the price that will be then asked for it. Where the crop is not large, the whole can be disposed of in these two ways, especially if we feel disposed to trade our honey for butter, eggs, meat, wheat, oats, corn, etc., which can be used in our families, or readily converted into cash. I find people much more ready to exchange their products

for honey than they are to pay cash for it. Even the man who works for me is much more ready to exchange his day's work for honey than he is to pay me the price of a day's work in money for my honey. There seems to be a certain desire to keep money after it is once obtained, with most people, which is so strong that they will often go without that which costs money, while an exchange can be readily accomplished with no money in view.

Second, we have our store trade, by which I mean the leaving of honey in glass fruit-cans, honey-tumblers, and the different pails suitable for retail purposes, at the stores in our vicinity, to be sold on commission, or to pay for the goods we purchase. Here we find the exchange mania coming in again; for a store-keeper will often give a good bargain by way of trading something we want, for our honey, while we could get him to take but very little, if any, if we demanded cash for it. I can not see the least impropriety in trading honey for boots, shoes, calico, hats, caps, or any thing we must buy; for in this way we find an outlet for our product, and purchase what we must have. By carefully looking after this store trade, and being affable and pleasant, much honey can be disposed of.

Third, we have the shipping of honey to distant points, to be sold on commission or for cash. As nearly all are familiar with the way this is usually done, I shall not dwell on these old plans, but proceed to tell you of one studied out by myself, which may be new to most of the readers of GLEANINGS, and which has worked well so far as I have tried it. Not producing much extracted honey of late, of course I have not tested it as thoroughly as I might have done; but, as I said before, it has been a success so far as I have used it. During my leisure days in winter I get out boxes of white basswood, poplar, or whitewood (tulip) lumber, to hold a given number of pounds, the sizes usually being 5, 10, 25, and 50 pounds, basing the size of the box on the fact that 20 cubic inches will hold one pound of honey, and give a little margin to spare, so that a box containing 200 cubic inches will hold 10 lbs. of well-ripened honey, and leave about $\frac{1}{4}$ inch at the top unfilled. The material for the boxes, after being gotten out, is piled up in the loft of the shop, and left till the next September before making up, when it is thoroughly kiln-dried through the excessive heat which pervades this place during the summer months. As soon as the honey begins to candy in the storage-cans, this lumber is gotten down, and the desired number of boxes made. When made, the inside of the joints is coated with paraffine or beeswax, and the desired number of pounds of the partially granulated honey run in. Over the top a sheet of manilla paper is now laid, and the cover laid on top of this, when the whole is set away till wanted for shipping. Along from November to February, according to prices and my wants, I take a block of wood of suitable size and bore a hole in it, into which I put a chunk of about two ounces of this now solid honey, and a slip of paper containing printed directions how to liquefy the honey, when a little piece of section is nailed over the open end. The block of honey is nicely wrapped up, and a tag tied on. I now take down my gazetteer, which gives the population of every town and city in the U. S., and pick out the place or places where I think such honey as I have will sell the best, according to population, location, and manufacturing interests,

when I mail the postmaster of the place selected one of the little blocks, and write to him, sending terms, etc., asking him to interest himself in the matter by showing this sample to those he thinks would wish honey, as they come after their mail, giving him a certain commission on whatever he can sell. As orders come in, take the boxes of honey, and after inspecting to see that all is right, drop on top of the honey the slip, telling how to liquefy it, etc.; then put on the manilla paper as before, and nail on the cover, trimming off the paper left outside, with a sharp knife. This paper is put in to make this upper joint dust and dirt tight. All that is necessary to be done now is to direct and ship. Without going into further details, I think all can understand that here is a plan that is not only cheap as to package, mode of working, etc., but brings our product to the consumer with as little middlemen agency as possible, when a market away from home has to be sought. G. M. DOOLITTLE.

Borodino, N. Y., Dec. 3, 1887.

Friend D., your plan has many excellent features to commend it. The principal difficulty, however, is with the wooden package. Prof. Cook mentioned it at Chicago, and the matter was discussed somewhat. Friend Heddon said he had tried the wooden packages; and while they did very well for handling honey around home, he did not believe they would ever take the place of the square tin cans which we show in our price list. He said he had been annoyed by having the boxes broken, and by leakage. As these packages are, however, cheaper than any thing else we can get up, we should like to have more reports from them. I was somewhat surprised to see how a rising vote threw out wooden kegs for shipping honey. Almost every one present had had some bad experience with them. The greater majority by far were in favor of tin cans securely boxed.

VARIOUS MATTERS.

IMPORTANT FACTS FROM FRIEND HYDE.

I SEE by GLEANINGS that there is a short crop of honey in all parts of the country, and do we know why it is so? I know that, in some parts, it is too dry, and in others too wet; but here when white clover was in bloom we had what I thought as good weather for honey as any I ever saw; in fact, June and July were just such months as I should have ordered if I ruled the atmosphere.

There was clover in abundance; and after clover, sumac; but still there was not much honey—only about enough to keep brood-rearing going or until goldenrod came, which gave almost enough for winter. Some colonies got sufficient from this source, as there was no honey in the hive before this came. So now I shall have a good opportunity to test goldenrod for wintering. This honey has the same peculiar odor as you describe the aster as having, on page 829.

Two years ago some of my neighbors claimed to get a large flow of honey from wild cherry, and that year we had a host of cherries, so this year I expected my bees to work on them; for, as expected, they were full of blossoms; but, on the contrary, there were but few bees to be seen on the trees; likewise the cherries dropped before they ripened.

There was no honey from buckwheat, and buckwheat yielded poorly. I sowed some the 25th of July, that would have yielded well if it had not been for frost, and the bees were busy for a good while upon it. This was European silverhull. Isn't it queer that we have it dry here while you have it wet, and vice versa, when the distance between us is so slight?

SUGGESTIONS ON SMOKERS.

I use a grate like the one in the bottom of the Bingham smoker, on top of the fuel, to keep the fire in, should the cone-top drop off. I also use one in the Clark to keep the sparks from coming out. I find, also, that the top of the Bingham will not heat so badly with this in.

THE BUTTER-DISH FEEDERS.

I want to suggest a few thoughts about feeders. Why not invert a large butter-dish over a smaller one, after you have placed it on the frames over the bees, first making an opening in the bottom of the larger one sufficient to pour feed through, and to see how full you are getting it? Then you can cover the opening with enamel cloth, and pack all around it with chaff to keep the feed warm.

I want to suggest another idea to N. L. Gerrish or C. C. Miller, in regard to filling empty combs with syrup. Instead of using the machinery that friend Miller describes on page 850, I take an empty comb (those that are in wired L. frames are the best to handle) and immerse it with the flat side up, into a wash-boiler half full of syrup, or more, pushing the comb down with one hand until the syrup flows over it, and then pass the other hand back and forth over the comb, lightly touching it. This will suck the air out of the cells, causing the syrup to take its place, until the whole side is filled or rubbed in; then reverse, and fill the other side in the same way. After they are filled, place them in a comb-bucket, to drain off. You might, before you set them aside to drip, wipe off with your fingers some of the surplus. After you have a sufficient number, take them to the hive, and the bees will repack them. You want your syrup about blood warm, and thick. I make mine like friend Heddon, using 3 lbs. of water with 10 lbs. of sugar, adding one level teaspoonful of tartaric acid when boiling. I know, friend Root, that you object to using any acid; but have you known of any harm that has resulted from it? If not, why not use it, as it will keep syrup from sugaring again? When I don't use it I find the sugar all crusted on to the combs after filling the combs in this way.

CLEANING OUT THE SECTIONS.

Friend Hilton, on page 851, says that he has no trouble about getting bees to clean out the sections and carry the honey below. I have tried the same way as he describes, without good success.

J. L. HYDE.

Pomfret Landing, Conn., Nov. 15, 1887.

Thanks, friend H., for the information you give us. I am inclined to think the goldenrod gave the peculiar odor you allude to.—Your remark in regard to the butter-dish feeder is good; but I don't quite see how the bees are going to get at the feed, on the supposition that the larger butter-dish fits closely over and around the edges of the butter-dish below. As a general rule, however, the butter-dishes are warped a little. In this event we have ample

room for the bees to go to and from their feed. Except as a winter feeder, we hardly see the need of the extra butter-dish. Even in quite cold and frosty weather in March, we find that the bees will readily pass up and take the feed, when they would not touch the syrup in a tin receptacle. So far as I know, your plan for filling a comb by rubbing your hand over the foundation is new and practical.

TWO VALUABLE FACTS.

ARE ENRAGED BEES LIABLE TO ATTACK BLACK OBJECTS?

THE above is the heading of an article in GLEANINGS, Oct. 15, page 785. You think the material has more to do with it than color. Several years ago I transferred my bees from deep frames to the Langstroth, or Simplicity frames; and by so much shaking of the bees they became enraged. There was a hen and chickens in a coop, close to the apiary; part of the young chickens were white, and part were black. They were attacked by the bees. I lifted the coop off from them, and the black chicks were completely covered with bees. You could not see them. They were balled, just like a balled queen, and the white chickens were not touched. I poured water on them, and got them away from the bees, but I don't recollect whether they lived or died. Was there more wool on the blacks? I think it was the color of the wool.

WILL CHICKENS EAT WORKER-BEES?

This is doubted by some, and I think it is very seldom that chickens eat bees; but sometimes they do. I once caught a hen catching worker-bees at the entrance of the hive, as they came in loaded. She would snatch the bee and jerk back, but took them about half as fast as she would have picked up corn. It was on Sunday, and I was eating my dinner when I saw her at her feast. I jumped up from the table and killed her, cut her crop open, and counted 53 bees in it. I don't know which commenced first. I think I was half done. I then went to work, I think the next day, and fenced them out; but since then I have let them run in again. Keep me a place in Blasted Hopes. I am coming.

R. ROBINSON.

Laclede, Fayette Co., Ill., Nov. 1, 1887.

Friend R., you give us a very valuable fact. In the case of chickens, if the bees attacked the black ones, and did not the white ones, they certainly have the power of distinguishing one from the other by color. And this would settle another point—that bees know colors. Before deciding, however, that there could have been no mistake in the matter, we should be glad to hear if anybody else has had the same experience.—I have never seen chickens eat worker-bees; but I have been assured they sometimes do, and on such good authority that I have been satisfied of the fact. We allow chickens to run about among the bee-hives as they choose, and I often see them snap up moth worms that have been carried out by the bees. If I should see any thing, however, that looks suspicious, as the case you have mentioned, I think I should adopt about as prompt measures as you did. I

presume it is only occasionally that a chicken happens to learn that heavily laden bees are good.

SUCCESSFUL CELLAR WINTERING.

HOW ONE OF THE FRIENDS ACCOMPLISHES IT WITHOUT SUB-EARTH VENTILATORS OR ARTIFICIAL HEAT.

I HAVE just read Dr. Miller's article, on page 812, with much interest. As I have been wintering bees in cellars for about 28 years, I will give my views as to what I think on this important matter. I have not, in all my experiments, found any place so good to winter bees in as a good cellar. I desire a very dry one. Our cellar is under our house, or, rather, the main parts, which are each 16 x 24 ft., in the form of an L. There is no partition through it. There are four windows, through which fresh air is admitted. In one part of the cellar we keep our bees. As we use it, the vegetables are in the cooler part and the bees in the warmer part, or under the base-burner. We can winter, in the room stated, from 50 to 125 colonies. We have an old carpet hung up between the bees and cooler part of the cellar. We never resort to artificial heat. The temperature is well under control, and in the bee-part it can be kept at from 50 to 60° if desired, in our coldest winters. It is usually kept at 45 to 50°, as we prefer that temperature. Last winter there was not a variation of over 4° from Nov. 18 to Apr. 10—the time the bees were in the cellar. The depth of my cellar is 7 ft., of which 1½ ft. is above ground. The wall is 18 inches thick from the bottom up, to within 3 ft. of the top. The upper 3-ft. wall is 15 inches thick, leaving room for studding and lathing, which is plastered with two coats of mortar. This gives two walls and a hollow airspace, where most exposed to the cold. As it is plastered up tight to the floor above, it is about mouse-proof, which is good in that respect. The floor is cemented so that bees and litter can be easily taken up when desired. This, also, makes a drier air, as is well known. The window-frames are supplied with screen-frames, which sit in near the window-sash, and are packed full with chaff, through which we admit pure air and exclude light. The windows are left open or ajar, in the bee-apartment all winter, excepting during very severe spells of cold, and then only for a short time. Variation in temperature in such a cellar is very slight, even if we have a week or two of thawing weather. In fact, our bees are as quiet in April as during the winter. When desired, the carpet can be swung to one side a little, and cooler air admitted gradually from the other apartment. One thing is evident: Where a change of temperature is desired, that change should not be abrupt, but very gradual. We have never found an exception to this.

We do not wish our bees to breed to any great extent while in the cellar. Very little brood is found when removed from the cellar in April. The entrances to the hives are left open full width, and are ¼ x 15 inches. The space between the bottom-bar and bottom-board is half an inch, summer and winter. I have never had combs built where this space was one inch, as you speak of having also tried.

I have not lost a colony in cellar wintering in the last six years. I wintered from 50 to 125; average about 90 colonies. F. A. SNELL.

Milledgeville, Ill., Nov. 22, 1887.

REPORT FROM TENNESSEE.

NOT VERY ENCOURAGING.

MY report is not very encouraging, but here are the facts. I wintered on summer stands with no packing, and without loss, beginning in the spring with 20 colonies in fair average condition. They started well, but received a severe check when in the midst of peach-bloom. All our fruit was cut short by frost. For some unknown reason, poplar (tulip) was also almost a total failure. I took only 29 gallons of honey, mostly from sourwood and cotton, but might have got five or six more in October from aster had not absence from home prevented. The aster was later than usual, on account of drought in August and September, but it came out rich in October. I had but three natural swarms, and put two of them in one hive. I sold one colony and made two full colonies by consolidation of nuclei. I made all ready for winter Dec. 1st, and have 22 colonies, all rich in aster honey. We have had some cold weather, but nothing near zero. For two weeks bees have been out more or less almost every day. So far as I know, my report is about the average for this county. One of my neighbors has done better, several not so well.

Lincoln, Tenn., Dec. 6, 1887. DAVID STRANG.

DANGEROUS STINGS.

APIS MELLIFICA IN A CASE OF SEVERE STINGING.

AFTER reading Dr. Porter's article on bee-sting poison as a remedial agent, I thought I would tell you what I know about it. My baby, 19 months old, got to a stand of bees lately, during my absence, and was very nearly stung to death. The first thing we did was to bathe him in strong soda-water; and after that we gave him cream-tartar water; and when the doctor came, the first thing he gave was apis mellifica, and put him in a hot soda bath. The bee-stings affected his stomach and bowels the same as if he had taken some deadly poison internally. The doctor said it acted like so much arsenic, and that apis mellifica was the remedy to give, and it proved to be so; for the little sufferer soon showed signs of improvement. But, the strangest part of it all, the places stung swelled but very little, and that not until the next morning. He had over two hundred stings on the head, face, and hands; and after reading how painful it is to be stung in the gristle of the ear or nose, I know his suffering was terrible, for the blood ran off the ears when the stings were removed, and one bee had to be picked out of his ear with a pin. You may ask why I gave cream of tartar. Well, I don't know whether it is good for bee-stings or not; but I gave it to my brother a few years ago when he had been stung so badly, while trying to transfer a stand of bees, that he had a hard chill, and there were hives all over his body as large as my hand. I gave him about a tablespoonful of cream of tartar, and a strong solution of cream of tartar to bathe in, and then sent for the doctor. He was much better by the time the doctor came, and

he said I had done as much as he could do, and did not give him any thing else. By evening (he was stung about noon) he was able to be up, but said he felt as if he had been sick a week. Now, I think every one who has bees ought to keep a vial of apis mellifica on hand, with directions to give in the case of severe stinging. MRS. E. C. HARPER.

Iantha, Mo., Nov. 23, 1887.

My friend, I presume I should have done just about as you did, in case of such severe stinging; but I think we should keep in mind, after all, that such reports do not give any positive proof that any of the remedies you mention did any good at all. From what experience I have had with cases of severe stinging, I should expect the baby to recover just about as you describe, without any medicine or treatment whatever, except removing the stings as speedily as possible.

WINTER LOSSES.

COLONIES DESERTING, AND BEES DYING FROM POISON.

LAST winter was a hard one on bees about here. One man, who wintered in the cellar, and has not lost any to amount to any thing for several years, and boasted that he would not lose any last winter, lost two-thirds of what he had. I lost 28 out of 80; 14 out of the 28 deserted in one afternoon. There were two more that deserted, but I got them to stay in their hives after putting them back two or three times.

The 52 that were left I increased to 72, and got enough honey to pay expenses; but I am not discouraged, as I got twice as much honey last year as I expected, and did not lose any thing this. This is better than a good many have done.

If I had followed the advice of some of the leading bee-keepers I should have lost 13 more swarms than I did. They advised that beginners should not handle their bees until the last of April. I commenced working mine the fore part of March, and found one that would not have lasted much longer, and I brought it through all right. About the middle of April, 12 colonies had lost their queens by deserting and otherwise, but I kept at work at them, so that, when clover came, they were all right.

What was the cause of so many colonies deserting in one day? Was it the bright warm weather, after the cold snap we had the first of the week?

PLANTS THAT ARE POISONOUS TO THE BEES.

What is there about sweet alyssum that will kill bees? We had a little patch in a flower-bed, and some days it would have a very strong and sickish smell; and the bees would buzz around it lively for a while, getting pollen, which was very sweet, when all at once they would drop down as though they were stupefied, and in a minute or two they seemed to be in great agony, and then die. Other days they would work on it all day, and it did not affect them. The days that it killed them, the pollen was a greenish yellow; and when it did not, it was a bright orange. P. H. FELLOWS.

Broadhead, Wis., Dec. 3, 1887.

Friend F., there are blossoms besides the sweet alyssum which at times seem to have the same effect on the bees. It has been observed and mentioned, even with so common a plant as sweet clover.

BEE-KEEPING AND FARMING.

MY REPORT, ETC.

I WENT into winter quarters with 144 colonies. I lost about 10 through the winter and spring. The spring was so unfavorable, the bees, instead of building up, ran down from the first of March till about the 18th of August. They did not gather honey enough in that time to make them quiet to manipulate.

I fed my home apiary, of about 100 colonies, 3 bbls. of honey-dew. This I fed outside the apiary, through the months of July and August. The first of August they were starving; that is, the weaker colonies. I then fed them 200 lbs. of sugar, made into syrup, and poured it into empty combs and set it in the hives.

About the 18th of August there was a little honey-dew, enough to start them to rearing brood; perhaps they gathered 5 or 6 lbs. per colony. About the 25th of August, Spanish needle began to bloom; but it continued so very dry that there was but little hope of weak colonies gathering sufficient stores for winter. I then commenced doubling up, or doubling down, to 95 colonies. Many of them by this time had lived out their threescore and ten. I fixed them up the best I could, and ceased making any effort for comb honey, inasmuch as I had more combs than I could take care of. The moth destroyed about 200 combs. I had to take care of my combs 11 months before I could save them on hives. My crop foots up to 1000 lbs. of honey and 30 lbs. of beeswax.

ITALIANS VERSUS BLACKS.

I had 20 colonies of Italians in an apiary, that were not fed any. I lost one colony and got 435 lbs. of honey from them, leaving 8 well-filled frames below for winter stores. I had 15 colonies of black bees in another apiary, and 6 colonies of Italians. About August 25th, when the honey-flow came, if I may call it a flow, there were only 4 of the 15 alive, and 5 of the 6 Italians alive. I got surplus enough from the Italians to winter the blacks; but I found one more black colony in preparing them for winter, about "petered out," which will leave 3 of the 15 alive.

Bee-men have lost from one-fourth to one-third of their bees, and they are not quite so well supplied for winter as usual either, while those that don't care for their bees have lost at least a half, and those that are alive now may not have sufficient stores to winter only the strongest colonies. Feeding bees for winter is not practiced here much. If bees don't gather enough to winter on, all they have to do is to step down and out.

FARMING VERSUS BEE-KEEPING.

Inasmuch as I had nothing to do to my bees but to feed them occasionally, and count the dead at night, I turned my attention to farming. I sowed 6 acres of oats and obtained about 225 bushels. I had 22 acres of meadow, which yielded about 7 tons of hay—and weeds. I gave one-half for getting it put up. I planted 15 acres of corn, which yielded about 1½ gallons per acre. I cut up the fodder, bound it in bundles, and after it settled it looked as if there were about 200 bushels of fodder. From the middle of June to this date there has been, as nearly as I could come at it by keeping a jar on a bee-hive, 3½ inches of rain. From the middle of July to the middle of August the temperature ranged from 104 to 115, and the country was literal-

ly plastered with chinch-bugs. Below I append my tabulated report:

1000 lbs. of honey at 10 cts. per lb.....	\$100 00
30 lbs. of beeswax at 23 cts. per lb.....	6 90
	106 90

INCIDENTAL EXPENSES.

90 gallons of honey-dew at 45 cts. per gallon.....	40 50
200 lbs. of sugar at 5½ cts. per lb.....	11 00
Other material.....	90
	52 40

54 50

FARM STATEMENT.

6 acres of oats, 225 bush. at 22 cts. per bush.....	\$49 50
15 acres of corn, 3 bush. at 40 cts. per bushel.....	1 20
22 acres of meadow, one-half, 3½ tons.....	21 00
4 acres of apple-orchard, ¾ bush.....	50
9 bush. of potatoes at digging time.....	5 40
52 bush. of wheat at 65 cts. per bushel.....	34 12
11 bush. buckwheat at 60 cts.....	6 60
	118 32

EXPENSES.

Cutting oats, planter, and seed.....	\$ 5 00
Wheat thrashing.....	1 60
Feed for two horses, corn, 50 bush.....	16 00
Say one ton of hay.....	10 00
	32 65

85 67

I spent about 20 days with the bees. There were between 75 and 100 days spent on the farm.

LaCleda, Ill., Nov. 8, 1887.

R. ROBINSON.

BEE ENTOMOLOGY,

Or Enemies of Bees Among the Insect Tribe.

MYRIAPOD—THOUSAND-LEGGED WORM.

M R. JOHN H. RUPERT, Woodcock, Pa., sends me a species of *ulus*, one of our common myriapods—the so-called "thousand-legged worms"—and a large female blister-beetle, *Meloe angusticollis*. He wishes me to name them in GLEANINGS. The first—*ulus*—is one of the vegetable-feeding myriapods. The common name—thousand-legged worm—shows the tendency of our people to exaggerate. These insects are cylindrical, with from fifty to sixty segments, or joints; each ring, or joint, has four legs, or two pairs of legs, so *hundred-legged* worms would be a correct name. Some claim that these eat the potatoes, and so cause scab. They are often called "wire-worms." This term applies more correctly to the grubs of our elater, or spring beetles. These myriapods are perfectly harmless, and may be handled with no danger, though the sensation of their many feet passing over one's hand is not altogether pleasing.

The large beetle is illustrated in my bee-book, and is the adult of the bee grubs, illustrated and commented on in GLEANINGS, p. 588. These are among the most interesting of our beetles. The vesicatory properties of the insects, and their strange and unique transmutations, make them most interesting subjects for study.

A. J. COOK.

Agricultural College, Mich., Oct. 25, 1887.

But as the scientific name—myriapod—means *ten thousand footed*, friend Cook, how much more are common people inclined to exaggerate, after all, who call it only a thousand?

ESTABLISHING OUT-APIARIES.

DOES IT PAY? IF SO, HOW SHALL WE GO TO WORK?

THE following paper was to have been read at the convention recently held at Chicago; but through some delay it didn't reach there in time. Inasmuch as the subject of out-apiaries has been considered in our Question-Box department, we thought best to take the following from friend Jones's paper. He has had large experience in this line; and as he speaks from actual experience, the reader will find many valuable points in it:

This is the question that has been assigned me by your Secretary, and it is one which is receiving considerable attention just now, as many engaged in apiculture are increasing their colonies until they have, frequently, more than they can afford to keep in one apiary. Then the questions arise, What should they do? Should they sell them off or start "out apiaries"? There are some localities where 500 colonies might be kept with success, and there are others where 100 would overstock them. We consider from 100 to 200 colonies as many as is profitable to keep in the average apiary. In establishing out-apiaries, fifty colonies would make a start, but we would recommend a hundred, as no more trouble need be taken to manipulate them. These would contain 200 in the fall, which might be divided again; thus your apiaries, if you double your colonies, would double every year. But counting mishaps, sales, and losses, perhaps we might more reasonably expect to double our colonies every two years. This, of course, depends largely on the practice of the apiarist. One man is required at each out-apiary during the season, which in this country varies from four to five months. From our home apiary we located one about one and a half miles to the northwest, the next about four miles to the northeast, next seven miles to the northeast, then one five miles north, one six miles northwest, and one ten miles northwest, with sometimes smaller ones between. From personal experience we are satisfied that, in good localities, from two to three miles apart is far enough to have them. We have had as good results from the closest apiaries as from those furthest apart, and that, too, when there were over 200 colonies in each. If the locality were suitable, we should prefer to place them so we could visit all the apiaries by driving the shortest possible distance; that is, five or six apiaries might be placed round a central one, or in a way that you could drive or take them all in in one route. Ours, unfortunately, are not so placed, and it gives us five or ten miles of an extra drive to take them all in; but as the locations suited us better, we thought it would more than overbalance the extra cost of the journey to place them as we did. Each apiary should have a practical man or woman in charge. We have frequently had students look after them, but it pays much better to have assistants with at least one year's experience, as the foreman can not manage to go around to each apiary more than once a week, and sometimes scarcely that, especially if he has to give a day to each apiary, to instruct the one in charge. The assistant in charge has spare time enough on his hands to keep the yard in nice condition, besides preparing sections, putting them on, keeping the hives painted, and making new ones when required. We never expect him to do all the work during the honey-flow, but give him assistance in extracting. The more assistance that is required for this purpose, the better the apiary pays. When extracting we use little boys and girls for carrying the combs to and from the hives to the extractor. Two of them, a little larger and a little practiced, do the uncapping and extracting. We have also had boys from ten to twelve years old who could put the combs back into the hives very well after they had been extracted. This class of labor with us is very cheap, and there is generally plenty of it in the neighborhood of every apiary that can be got when required. The youngsters think it as good as a holiday to get an opportunity to work in the beeyard. With a good practical foreman to visit the yards and see after them, as much can be realized from the out-apiaries as from the home ones. Very often they bring in better returns because they are

selected on account of their fitness, while your home apiary may be tolerated only because of its being your "home," rather than the most favorable place for an apiary. Almost any number of apiaries may be managed in this way if the owner is thoroughly practical, and will devote his entire time to the business, or if a good reliable foreman and trusty students can be secured, or, better, those who have had, say, a year's experience. We are satisfied, that, after one has mastered the business, and understands it thoroughly, if his surroundings are suitable he is only fooling away his time with one apiary, as he can manage several without any more trouble than is required to manage one. He would require a suitable rig, so that in driving to each apiary he could take such supplies as he might require, and in returning could bring any honey that there might be on hand.

We have parties offering us the privilege of establishing apiaries on their premises, without any charge. One man, where we had an apiary for over ten years, sold his place and moved away. He has asked us to come and establish one on his new place, free of charge, knowing as he does the benefit that the clovers, fruit-trees, and vines receive from the fertilization of the flowers by the bees. The highest that we have ever paid is \$25.00 a year for bee-houses or cellar to winter in. All the ground that is required is a quarter to half an acre to place the bees on. From \$5.00 to \$10.00 a year is the usual rent where a charge is made at all. Even though a person has a sale for all the extra colonies of bees he can spare, it will pay him to have at least one or two out-apiaries, because, if increase is the principal object, the sale of bees will doubly repay the interest on capital invested. Any honey that they may stow away, more than is required, can either be extracted, or the filled combs may be kept for future use, as it is desirable to have some such combs on hand to save feeding colonies that are run more exclusively for honey. We believe that all such apiaries should be managed for both honey and increase, unless the sale of bees is almost impossible at a very low figure, in which case increase is a thing not so much to be desired.

OUR BUSHEL BOXES FOR POTATOES.

SOME KIND WORDS IN REGARD TO THEM, FROM
PROF. CHAMBERLAIN, OF THE IOWA AGRICULTURAL COLLEGE.

WE clip the following from the *Country Gentleman* of Nov. 10; and we hereby extend our thanks, not only to friend Chamberlain, but to the *Country Gentleman* as well, in giving so flattering a notice of our work:

I agree with C. E. Chapman, page 779, in discarding grain-sacks for handling potatoes, and wonder that Mr. W. F. Brown should recommend them after Mr. T. B. Terry's repeated mention and description of *bushel boxes* and their uses. The latter are better and more durable than crates; indeed, the very best things, it seems to me, that can be devised. I ordered 125 for the college this fall, and our foreman says they will pay their cost this year in the saving of labor in handling about ten acres of experimental potatoes, some ninety varieties. We ordered them of A. I. Root, Medina, O., the manufacturer of bee-supplies. They are of basswood (linden) lumber, half-inch or nine-sixteenths of an inch thick, bound with light galvanized hoop iron. They are sent in distant shipment by freight, "in knock down," boxed all ready to nail together, with nails, binding, and all, complete, and *exactly right*. The top edge of the sides of the boxes comes already bound with iron. The edge is grooved a little, and the binding is fitted on by machinery as neatly as a tailor would bind a coat-edge and press it. On arrival the boxes are nailed together and a band is nailed entirely around each end. A hand-hole is cut at the place of manufacture, by machinery, near the upper edge of each end of each box. The boxes are about 16 inches square, and are light, strong, durable, cheap, and most convenient. I do not give exact dimensions, because I am now away from home, and do not remember them, and because the boxes can be

ordered of Mr. Root, and shipped to any part of the United States "in knock down" by freight cheaper than they can be made in any locality, except by special machinery, and in quantity. My remembrance is, that they cost about twenty cents. Mr. Root, I presume, calls them "Terry's bushel boxes," not because Mr. Terry invented them, for I think he did not, but because by his writings he brought them into general notice and use; a real benefit to farmers. My impression is, that Mr. Terry suggested certain improvements in their construction. Both men have done a good thing, I think, in bringing them into more general use. They are the handiest things on the farm. With our low-platform "Michigan wagon," which I will some time describe, with its strong 7 by 16 platform, we can load 60, or even 100 bushels in a few moments after they are picked up over the field, and store them in the cellar or car without shoveling or any handling, except to empty the boxes.

I will add, that the bushel boxes, as used by friend Terry when I visited his place, were of very much heavier lumber, and made without the galvanized-iron binding which we have added to it. The first that I made were put into practical use out in the fields, picking up stones; and it occurred to me they would be very much more durable and more serviceable by this iron binding, and at the same time they could be made lighter, because thinner lumber would answer when bound with iron. I now remember that I spent quite a little thought and study on the matter, and concluded that an implement, to be used over and over again, as we used these boxes, needs to be made with a good deal of care and pains; and in view of this, friend Chamberlain's kind words were very acceptable when my eye ran on to them in looking over one of my agricultural papers—the *Country Gentleman*. A great part of my evenings are spent with these agricultural papers; and I have learned to feel toward them as if they were old and tried and much-esteemed personal friends.

FOUL BROOD AT THE HOME OF THE HONEY-BEES.

SUGGESTIONS FROM ONE OF OUR ENGLISH CORRESPONDENTS.

I DO NOT suppose I shall ever meet you; but nevertheless my thoughts are often with you in your good work; and you also have my sincere sympathy in your time of trial and fighting with the plague. Though until recently you had never even seen foul brood, you now appear to be having a hard time of it. Foul brood is very infectious, as I well know, but usually there is no reason why so many colonies should become diseased in any apiary when only two or three are foul in the first instance. Your own experience appears to denote that your bees have access to diseased hives in the possession of your neighbors, or have had the chance to get at honey containing germs of the disease, that you may have purchased; or else, what is still more probable, the reason that the complaint breaks out in so many different colonies is, that your operations in connection with the whole apiary are not conducted by a single operator who knows exactly what he is about, and the nature of the disease he has to contend with.

Had some one responsible apiarist, such as yourself, or Ernest, for instance, the entire control of all manipulations from the time of the first out-

break, I have no doubt that ere now that *caution*, so absolutely necessary to be practiced, would have become the watchword, and many already diseased stocks would never have become so. With several hands about, each carrying out some manipulation, it is utterly impossible to prevent the spread of the disease, unless the master-mind is ever present to see that every precaution is taken. Having foul brood in an apiary, every colony alike must be suspected until it is certain the pest is quite cleared away. Every time, whether opening a suspected, or what is thought to be a clean hive, the hands must be disinfected as well as the articles used, before another hive is touched. Thus only can one ever hope to eradicate the plague from his apiary, whether he adopt the phenol or starvation cure, or any other; once keep the disease from spreading to other hives, and a speedy cure is certain. Besides handling hives and frames indiscriminately, I have never known the disease to be spread, except by robbing, and this can be avoided by the careful apiarist.

Some twelve years ago, I completely cured my own apiary by the starvation plan, and never destroyed any bees, except the wretched remnant of a colony found to have been robbed in the first instance, and before I knew what I had got on hand. No colony renovated by starving, and then given clean hives, and made to build new combs, ever had the disease again, and so presently I had all clean stocks once more. Where one has a large apiary, and great risks at stake, this will ever be found the most satisfactory plan—melting down all combs, scalding and disinfecting the hives. The frames should be burned out of the way, as they are not worth cleaning. Single-walled hives are far more easily disinfected than those with double walls, and probably for this reason I shall never again use any but simple hives.

As a preventive, I would use Mr. Cheshire's remedy in food, given to every colony both spring and autumn; but as yet I prefer the total-renovation process as above, giving an immediate and certain cure, causing much less anxiety, and no further manipulations. The most economic plan must always be that which puts a job out of hand at once, as labor is no inconsiderable item where a large apiary has to be attended to. That phenol will cure, as well as act as a preventive, I am satisfied; but if I were troubled badly with foul brood again I should not feel justified in keeping it on hand *long enough* to cure by that means, leaving out of the question the many manipulations to be carried out meanwhile.

During my extensive experience with the disease twelve years since, as I have said, I not only did not destroy the bees when of any use, but I also saved the brood that would hatch. A certain colony (or colonies) had their queen removed; when the next lot, slightly diseased, was found, a new (starved) swarm was made with its queen, and given a fresh start, while the hive of brood, combs, and remaining bees, were placed with or above the queenless lot. As fast as the brood which would, had hatched out, the emptied combs were removed and destroyed; and so the process was continued until in the end only these "hospitals" remained to be starved out and their combs destroyed. In many cases the combs were cleared of every particle of diseased matter; and such was also the case where queens were removed from strong colonies,

taken in hand before the case had gone too far. Nevertheless, all such combs went into the wax-pot, and the refuse was carefully buried or burned afterward.

The lesson was such a good one, and the necessity of always adopting the greatest caution was so thoroughly impressed upon me, that I have never again had the complaint in my own colonies, though it has frequently been brought into my apiaries among purchased bees. The experienced eye will at once notice the least suspicion of foul brood, and the only thing to do is to put it out of harm's way at once.

There are many who are not acquainted with the nature of the treacherous disease; but any one in doubt about it will observe that, where any of the larvæ or older brood retains its original color and form, in many cases drying up to a white cinder, there is then no actual disease, even though some of the younger larvæ appear just as rotten as that of the real foul brood; but in the latter case the whole of the dead brood changes color, and becomes a dark putrid mass.

Simple dead brood, as above, will generally disappear during the autumn, or simply by giving a new queen; and there is not the least doubt that it has been this slight malady, and not genuine foul brood, which has sometimes been reported as curing itself. I have never known the real plague to cure itself, though it can be to a certain extent restrained, by an energetic colony with a young queen; and from what I know of the nature of the disease, I never expect to see a cure.

SAM. SIMMINS.

Rottingdean, Brighton, Eng., Nov. 8, 1887.

Accept our thanks, friend Simmins, for your very kind letter and words of advice. Your statements in reference to the disease in general, agree with our experience. It is possible that some of our neighbors' bees have foul brood, and it is possible that a diseased colony lives in some hollow tree in the woods. In the latter event I do not know how we can remove the source of mischief unless we scour the country in bee-hunting excursions. We have questioned those who keep bees within a mile and a half of us, and they all unite in saying, so far as we have heard from them, that their bees are free from all such infections as we have described to them. If such is the case it is not probable that there is a diseased colony in the woods. I (Ernest) pass among the bees several times a day. I keep track of and advise the boys; and when I have time I work among the bees myself. If a colony of foul brood is found, I direct as to its mode of treatment, and, as a rule, I am on hand to assist. The two apiarists are very careful men; in fact, as careful as I could be myself. So closely were the colonies examined, that, with one or two exceptions, we never found more than one or two infected colonies in an apiary in a single day, and most of the days none at all. Practically speaking, the disease did not exist in our apiary during the summer. But you will urge that foul brood did occasionally manifest itself, and, in consequence of this, there was something in my treatment or management that was not quite right. This may be true; but if so, I plead in defense that, at the solicita-

tion of not a few, I experimented with some of the acid treatments; and while such experiments may have been favorable for the further continuance of foul brood, I am the better able to judge regarding the merits of this or that treatment; and consequently to advise our over 7000 readers when they get into trouble. After having tried the various acid treatments, I feel sure that, for efficacy and dispatch, there is no better method than the starvation plan, coupled with a good antiseptic.

THE FAMILY POCKET-BOOK.

DR. MILLER TELLS WHICH OF THE TWO, WHEN THE TWO ARE WON AND ONE, SHOULD CARRY IT.

FRIEND ROOT:—I'm riled again. On page 743 you say, "But I do think it is every woman's privilege to have the money an article costs, in place of the article itself, whenever she wishes." Now, I just don't think so—at least, not in some cases. Let me give a case in point. My wife wanted her strawberry-bed cleaned out. We had had a severe drought, making the ground hard, and the condition of the bed was such that it would take no little strength to do the required work. I told her to hire the work done. No, she wanted to do the work herself, so she could have the money it cost, to do as she pleased. As nearly as I recollect, the matter was left in a half-settled condition; and before I fairly knew what was going on she had a good share of the bed done, and, like all of her work, it was done in good shape—perhaps better than if the work had been hired. But. For the next 24 hours she was a sick woman, and did not fully get over it for a number of days. In such a case I feel that I have the right to say, "That money must go for the work, and it is not your 'privilege to have the money' the work 'costs, in place of the article itself.'"

But the very fact that a woman may want the money instead of the article itself, is suggestive of a state of affairs that is radically wrong. It brings to mind a good many cases I have known, one of which I will mention. During my boyhood I clerked in a country store, and among our customers was a well-to-do farmer who lived quite near. I don't suppose the man thought he was a tyrant, but he was unwilling to furnish his wife what was really necessary to bring up a large family. So sometimes one of the girls could be seen coming down the back alley, through the barn, into the back door of the store, bringing a pillow-slip full of goose feathers, a roll of butter, or what not, to trade for needed goods, unknown to Mr. Nagel. I can hardly blame a woman, in such a case, even for making herself sick for the sake of getting something she needs very much.

Now, in my judgment there is something radically wrong somewhere, when a woman can spend money only at the pleasure of her liege lord, and must come with a feeling of dread for every dollar she wants. It is a relic of barbarism, or, rather, barbarism itself, to consider the wife as merely a slave or a servant, entitled to a mere pittance, grudgingly doled out, when she wants any money for her own disposal. And when a woman wants the price of an article rather than the article

itself, there is at least a faint suspicion that possibly she does not feel at liberty to put her hand in the common pocket-book and draw therefrom what she may desire.

But I am not starting out on a tirade against mankind. It is womankind I arraign. Whatever may be said about women in general, there are some who seem to have the impression that a husband is a mere machine to drudge and earn money that his wife may have plenty of money to dress up in fine raiment, and sit and fold her lily-white hands in graceful idleness. Deep down in the bottom of the hearts of even the worst of these, there is, however, I believe, a better nature which is buried under only a layer of selfishness; and under favoring circumstances this better nature will come to the surface. The disease, therefore, is not incurable.

There is another disease which, although of an apparently mild type, has this sad feature; it is, so far as I know, incurable. It is a sort of mild insanity, or monomania. I am well acquainted with the symptoms, a case having for a long time been under my observation. The lady in question, sane upon all other subjects, is affected with the delusion that she is entirely free to use as she pleases only such money as she may earn with her own hands, and receive not from her husband, but from some one else, as the reward of her labor; and yet her husband has always given her freely all the money she wanted, and more, insisting that, although he might have received the money, it was just as much hers as his, and she had as truly earned it by doing her share of the work in the life-partnership. Yet she sadly says, "Before I was married I was independent; I earned my own money, and felt entirely free to do as I pleased with it. Now, I can have only what my husband earns; and although my husband is the kindest man in the world, gives me all the money I want without asking what I want it for, still it is not pleasant to feel dependent. Then her husband tries to humor her whim, and offers to pay her stated wages for working for him. But she says, "Oh! that's different. I couldn't take wages from my husband." Sometimes she deludes herself with the pleasing fancy that she is earning something herself in this way: She buys a pig, or something of the kind, takes care of it herself, and then if it sells for \$10.00 she feels rich in the possession of \$10.00 of her very own. No matter if \$11.00 of what she considers her husband's money was paid for the pig and its feed, she takes no note of that, content to think only of the \$10.00 that *she has earned*. Is this an isolated case, or is it a type of a class? And is there any cure for such a case?

Marengo, Ill.

C. C. MILLER.

Why, friend M., your experience agrees with mine exactly. It is a grand thing for the *children* to get a mania for being independent, and for desiring to earn some money all their very own; but when the *wife* starts out on that tact, it is another thing. Just say to that lady, friend M., that when she is married she and her husband are one, and that therefore the pocket-book is common property. When I got back from the Chicago Convention I found my every-day boots all cleaned up nice, and oiled. I knew they needed it, but I didn't have time to do it; and when I thought of

my wife doing that kind of work for her absent husband, I commenced to give her a good scolding. She very meekly informed me, however, that it was all right. She said she found a *dollar and a half* in the pockets of my old clothes, and so it was all square, without any more being said about it. I changed my tactics, and was going to start out again, but finally concluded she was "mistress of the situation."

HONEY-TUMBLERS.

HOW SHALL WE PUT UP JUST ONE POUND OF HONEY, AND HAVE THE TUMBLER EVEN FULL?

FRIEND ROOT:—After reading what you wrote on page 877, in regard to the "false balance," etc., I can not resist the desire to call your attention to something in your own business that is very similar to the false-barrel business which you there so justly condemn. In the summer of 1886 I sent to you for 100 one-pound tumblers, as I wanted to get people to using a little extracted honey. The tumblers that you sent weighed just 14 oz. more when filled than when empty. I wrote you about it, and you answered that my honey was thin. You were mistaken, but I could not very well prove it, so the matter was dropped.

Again, this past summer I sent to you for a barrel of 1-lb. tumblers, hoping to get some that would hold a full pound; but I saw at once they were smaller than those you sent the year before. They will hold 12½ oz., if filled very full. The result is, I have used very few of them, and feel as though I never wanted to use them, as there is a falsehood on every one, for the labels say, "One pound."

In regard to the false-barrel business, you say, "The man who decides to use such barrels is the one who is cheated in the end. But very likely he bought them for honest barrels." I ordered 1-lb. tumblers, paid for them, and can not very well afford to throw them away. As you say, the whole business is abominable in the sight of God and honest men. I know that you do not make the tumblers, but I suppose you sell large quantities of them, and surely you can get the manufacturers to make you a tumbler that will hold a full pound.

Now, in regard to the 1-lb. section: I use sections 7 to the foot, and find that, if full sheets of foundation are used, they will weigh, when filled, 14 oz., average. I sell them by weight, and tell every one they will not weigh quite 1 lb. But they are often retailed from the groceries for pounds, and it is certainly very desirable to have a section that will weigh a full pound. For that reason I am thinking of using 1½ sections, and should like to inquire of those who have used them if they will average 1 lb. when used with separators; and if they can get as much honey in them as in the narrower sections.

I see by the bee-papers that many have fed their bees large quantities of sugar syrup for winter stores, but you are offering nothing better than a butter-dish for a feeder. Is it necessary that we should bother with butter-dishes and pepper-boxes, when we have thousands of pounds of syrup to feed? I believe nearly all bee-keepers agree that it

is better to give it all at once. It should not be a very difficult matter to make a wooden feeder holding 25 lbs. that can be set right on the frames of any hive.

I got ten of your 12-lb. shipping-crates last spring, and like them very much. I think I have sold 500 lbs. of honey in those ten crates. I fasten the covers on with a little leather hinge to keep them in place, and it makes a nice covered box for the honey while it is being used in the family, or sold from the store. Put a paper in the bottom, and change it every time you fill the crate, and sandpaper off the outside whenever it is soiled.

My report for the past season is as follows: I had 28 colonies in the spring, and have 40 at the present time; 900 lbs. of comb honey, and 200 of extracted. I am but a novice in the business, as I began three years ago with one colony, and have never bought or sold a colony since.

Those "sermons out of church" are doing a world of good, and that kind of mixing things can never do any harm.

Brother bee-keepers, let us give good weight and measure, pressed down, running over; and don't try to sell glass or wood for honey. In other words, let us do unto others as we would that they should do unto us. A. C. BUGBEE.

Lochiel, Ind., Nov. 28, 1887.

Friend B., I want to get hold of your hand and thank you for the frank manner in which you come right out and tell us of our faults. Nothing could convince me so thoroughly of your sincere friendship as this straightforward manner. You say, in closing, that you know we did not make the tumblers; and you might also add, that we did not sell them, when filled with honey, for a pound of honey. For all that, it is bad business. Please have charity enough, however, to believe me when I say that we had no intention or thought of deceiving when we used these tumblers. There is certainly a very great deal of difference in the specific gravity of honey. John has just brought me a tumbler of each size, half-pound and pound, filled with clover honey. The half-pound holds a little too much; in fact, we have had some pretty severe scoldings because of this fault. One friend says that his customers grumble unless the tumblers are full; but if he fills them full they hold nine ounces. If he puts in exactly half a pound, each tumbler has to be weighed, which is an annoyance and bother. We have had pound tumblers from two different glass-factories, and it is true that the one we are now using holds only 15 ounces. There has never been a tumbler made especially for honey. Well, in hunting up a package for a pound of honey, I found these jelly-tumblers. I believe they are called, among glassware-men, half-pint tumblers; but they hold so much over half a pint, that, with very thick honey filling them clear to the brim, I succeeded in getting in a whole pound, and decided that it is better to use these than to go to the enormous expense of changing dies and machinery to make something a trifle larger. A good many of our customers sell them, filled with honey, at so much a tumblerful. When asked if there is a pound of the honey, they always say,

"I believe there is not." I do not know how the jelly-tumbler folks came to strike on any thing so near just what we want. Here it is, however, in almost every market of the world, and it will be very expensive business to get new molds and new machines for making them. And even if we do, the two sizes are so nearly alike they will be constantly getting mixed up. Had we not better take the tumblers that are already in every-day use the world over, almost, and sell the honey at so much a tumblerful? The question *will* come up, however, "How much do they hold?" or, "How much does it lack of being a pound?" and then comes this long string of explanations.

Your concluding words, friend B., are right, and have the right ring; and if there is no other way out of it, we will go to the expense of having dies and tools made to make a tumbler holding a full pound of honey—no more, no less. I think very likely, as you say, I had better have a little more charity for the barrel-makers. I have been told, however, that apple-dealers and producers have had a scant barrel gotten up expressly to humbug their customers.

CHAFF HIVES.

REASONS FOR PREFERRED A ONE-STORY HIVE.

FRIEND ROOT:—I am one of those bee-keepers who believe in outdoor wintering. I also prefer to use the chaff hive all the year. It is a protection from the fiery rays of old Sol, as well as from the frigid breath of Boreas. I do not wish grapevines in my apiary, and I have tried the shade-board and 15-pound stone, and can not tolerate them. Friend Heddon considers that a love of handling these stones is one of the qualifications of a bee keeper. Friend H. will please pardon me, for I think that that is along the same line as the reasoning of the traditional farmer who went to mill on horseback and put a stone in one end of the bag to balance the grist which was in the other end.

If a chaff hive is of the right construction, it answers all purposes with me. I believe, friend Root, you are willing to be criticised, and will listen attentively to any criticisms upon the articles, which you recommend and sell. Now, as I use chaff hives winter and summer, I want one that is convenient and practical. My objections to your chaff hive are, 1. The brood-nest can not be got at when the upper story is full of frames, without removing the 10 or 14 frames as the case may be, and placing them in an empty hive, or standing them against the hive. With my system of management this is a serious fault. 2. When the upper story is emptied you have to fish the brood-frames out from the bottom of a deep hive. 3. The packing around the upper story is not needed—at least, so it seems to me. 4. I dislike the low, loose cover which has to be lifted off and on.

I have overcome these objections by changing the construction of the hive. I use half-inch lumber, which is ship-lapped. The upper story is not packed. The inside decking comes even with the top of the brood-frames. The outer shell is the only part of the hive-body which projects

above the brood-nest. The extracting (or brood) frames are placed in a super, something like one story of your Simplicity hive. This super is placed inside of the upper story of the hive. When I wish to examine a brood-nest I lift out the super and place it on a box or wheelbarrow, if one is near; if not, on the grass.

The hive-cover is hinged to the body, and when I wish to look into a hive I simply turn back the cover until it rests on a couple of brackets which are nailed on the back of the hive. As the cover is the same size as the body, and forms *one-half* of the upper story, when raised it forms two convenient shelves on which to lay tools. Being made in this way the shell of the hive need project only 5 inches above the brood-nest; hence the brood-nest can be easily got at. But the most important point in constructing the hives in this manner is, that they can be made easier and cheaper. Almost any kind of surplus cases may be used in the hive, and almost any size; but I would advise the use of only one size. Now, if I am in error, please correct me.

Allow me to say that I enjoyed the Chicago Convention very much, but sadly missed the smiling countenance of Mrs. Chaddock and P. Benson, A. B. S. W. E. GOULD.

Fremont, Mich., Nov. 25, 1887.

If you will turn back to page 189, March 1st, current volume, you will see that we have been making and selling a hive very similar to the one you describe, and which overcomes all the objections to our large two-story chaff, which you name. There is one other defect which you did not mention; and that is, that tiering up can not be carried up more than two tiers of sections high. As our one-story chaff is perfectly interchangeable with the Simplicity and all its furniture, tiering in the one-story chaff can be practiced as far as circumstances may require.—In regard to hinges for covers, we regard them as unnecessary and expensive. We tried them years ago, and for obvious reasons abandoned them.

USE AND ABUSE OF UNFINISHED SECTIONS.

VALUABLE SUGGESTIONS ON HOW TO DISPOSE OF THEM.

IN the discussion of every question that is brought up in our bee-journals, we have extremists whose advice it would not be wise to accept. Some say, "We have no business to have many unfinished sections, and with proper management there is no need of having them." There will always be quantities of them as long as sections are used, since it is true, that, by a sudden and unexpected ending of the honey-harvest by drought, or by too much rain, the flow is cut off, which circumstance can not be controlled by the bee-keeper. This being true without a possible remedy, it is only necessary to deal with the problem of what shall be done with this uncompleted work. Some have advised burning the sections and melting the combs. Now, this is bad advice, bad economy, and poor judgment. To make a fair living for a family out of the pursuit of apiculture (in most localities) it is wisdom to concede the fact that close, economical management must play an

important part in the business. These partly filled sections are the best stock in trade about the apary. When by actual experience I find that my bees will enter the sections more freely when they contain drawn combs, I want starters of comb, and I want them bad, say what you may about sections filled with foundation.

My first experience in the use of partly filled sections was not satisfactory; and especially was this so with those that had been pretty well filled out the previous season. The honey presented an oldish appearance, causing customers to ask, "Is this not old honey?"

I will now give my plan of working these unfinished sections up into cash. When the honey-harvest is about closing, and work on sections is so slow that the loss is becoming greater from discoloration than is gained by completion, they are at once removed. Those completed are put in crates ready for market. Those almost finished are sold to any who may wish to buy them, at a little less price. What are not disposed of in this way are cut out, put in pans, filling the interstices with extracted honey taken from the poorer finished sections. The pan and all is sold for about full price of nice sections, and no trouble to do it. The partly filled sections, after being nicely cleaned of wax and propolis, are run through the extractor, after which they are returned to cases as before, and stacked up in short tiers. These are placed over or near hives at night, to be cleaned up. They are then stored away in a mouse-proof place until the next season.

Previous to placing these again over the bees, the combs are reduced in thickness so that the depth of the cell is not over one-fourth of an inch. To do this nicely and speedily I got out a piece of sheet iron, smoothed on one side, and just large enough to easily go inside the sections. To the four corners of this are fastened small rods of iron, of a suitable length to permit a small lamp to go under the plate. A good heavy block of wood, having holes to receive the legs of this small table, makes all solid and a nice place for the lamp to rest. Now, by turning on or off the flame, the plate is kept at such a degree of heat that the comb is quickly melted away to the desired thickness. They are now placed in the cases, and when the surplus room is needed by the bees, these sections are given to the strongest colonies, and at once they go to work on them. After the bees have worked on these combs a few days, I examined all other colonies; and where any are found slow about starting, I take four or five of these sections, bees and all, and place them in the center of the case, which will usually start them at once; but if any colony, for lack of bees or other cause, still refuse to go to work, I exchange a full case, which never fails.

By melting away part of the length of the cells, the bees are compelled to add new wax in lengthening them out, which, when finished, will be as fine in texture as though no old comb had been used. If the honey taken from the unfinished sections is not ripe enough to be nice, it must be placed in open vessels in a dry warm airy place, where it will soon become "orthodox" honey. Some advise giving the unfinished sections to light colonies. As long as I can get ten to fifteen cents for this honey, and granulated-sugar syrup for five cents a pound, the latter will be used to supply colonies deficient in stores.

J. A. BUCHANAN.

Holliday's Cove, W. Va., Nov. 21, 1887.

We are much obliged to you, friend B., for your suggestions. Your idea in regard to disposing of partly filled sections is good; and where the market is such that it can be retailed in that way, we have no doubt it would pay well. Folks who have a great liking for the good old-fashioned honey, such as our grandfathers used to get, would no doubt even prefer this sort of chunk honey.—In regard to reducing the cell-walls of combs partly drawn out in the sections, you will see that you have come to the same conclusion that was arrived at by the Chicago Convention recently. I don't believe it is profitable to use very many full combs drawn out in the supers; but if you shave or melt it down as you do, it would be practically foundation. Although your plan for reducing the cell-walls is ingenious, I am rather inclined to think I should prefer to use nice clean sections and newly made fdn. It is a good deal of labor to fix over and prepare all unfinished sections in the manner you describe; at least so it seems to me; and if you count your time worth any thing while doing it, could you not almost afford to purchase new sections and clean fdn.?

THE JAPANESE BUCKWHEAT.

ITS LARGE YIELDS, AND ITS MERITS AS COMPARED WITH OTHER BUCKWHEAT.

IT is a little remarkable, that the reports so far are quite uniformly favorable to this new buckwheat. Its yield, when compared with other varieties, is considerably ahead. To this there is but a single exception in this long list of reports, and that is the one from our friend Abbott L. Swinson, Goldsboro, N. C.

27½ LBS. FROM FOUR OUNCES.

You ask for reports from those who have tried the Japanese buckwheat. My report is, from ¼ lb. bought of you I harvested 27½ lbs. C. J. ARNTS.
Meshoppen, Pa., Nov. 11, 1887.

TEN BUSHELS FROM ONE HALF-PECK.

I sowed ½ peck this season, which I purchased of Mr. Peter Henderson, and I thrashed ten bushels of very fine buckwheat. J. C. GALLUP.
Smithport, Pa., Nov. 21, 1887.

A YIELD OF ONE QUART FROM A FIVE-CENT PACKAGE.

I got a five-cent package of Japanese buckwheat of you. During the dry weather I watered it quite often, and I got about a quart. I can not tell exactly, for I don't know just how much the hens ate. Pipestone, Mich., Nov. 24, 1887. G. CLARKE.

TEN BUSHELS FROM ONE PECK.

I sowed one peck of the new buckwheat on very dry sand, and thrashed ten bushels. I think the old kind would not have given any crop at all, on account of the drought. My bees did not work on it very much. I wish I had bought a bushel of you, and sown it on better land. H. P. LANGDON.
East Constable, N. Y., Nov. 21, 1887.

ONE AND ONE-HALF BUSHELS FROM A POUND OF SEED.

I sowed 1 lb. of Japanese buckwheat, and, in spite of an early frost, drought, and a flock of 20 young guinea fowls, I thrashed out 1½ bushels of

fine, large, and sound seed. I think it is the thing to raise, both for bees and flour.

Owosso, Mich.

O. G. JOSEPHANS.

ONLY SIX POUNDS FROM ONE FOURTH-POUND.

I sowed 4 oz. June 22, and I believe it would have been a total failure had I not carried water to keep the seed from burning up, so I raised only 6 lbs. of seed from the 4 oz. S. HEATH.

Rimer, Pa., Nov. 24, 1887.

SEVEN AND ONE-HALF POUNDS FROM ONE OUNCE.

On the 11th of July, last, I received from you 4 lbs., and gave it to the tenant on my brother's farm to sow, reserving one ounce to sow in the garden. From the ounce I harvested 7½ lbs., nice plump grain. That sown on the farm was destroyed by a large flock of turkeys; but I think it would have made a fair yield. JESSE BRADY.

Little Rock, Ill.

ONE BUSHEL FROM A QUARTER-POUND OF SEED.

I see that you wanted all those who got Japanese buckwheat of you to report how much they had. I sowed my ¼-lb. the 23d of June, and it filled through the hot weather, and I harvested one bushel. My father sowed 1½ acres of black buckwheat, and got 50 bushels. I call that pretty good.

PERLEY LANGWORTHY.

Riceville, Pa., Nov. 24, 1887.

THE JAPANESE AHEAD OF THE SILVERHULL.

I sowed a pound of Japanese buckwheat, from which I thrashed 16 pounds of clean seed. Silverhull buckwheat alongside of it yielded 5 bushels to one sown, so you see the Japanese came out ahead of the silverhull. The weather was very dry, and I think it did very well with the chance it had.

Barnes, Kan., Nov. 26, 1887. CONRAD GEHRING.

ONE-FOURTH POUND YIELDED NINE POUNDS.

I bought of you ¼-lb. of Japanese buckwheat. I dropped about half of it in drills in the garden, and watered it once, so that it came up and produced a crop of 9 lbs., which I consider pretty good for this dry season. I drilled two acres with the common in the field, and it did not yield any thing, although it was pretty well manured with stable manure.

We have taken 180 lbs. of extracted and 100 lbs. of comb honey from 21 stands of bees.

Spring Valley, O., Nov. 26, 1887. G. W. THOMAS.

JAPANESE YIELDED 40 BUSHELS TO THE ACRE, AND THE SILVERHULL ONLY 27.

I purchased of you one peck, 12½ lbs., of Japanese buckwheat, and on the first of July I sowed it on 50 fifty rods of land; and on the same day in the same field, and no difference in the land, and no fertilizer of any kind used, I sowed three acres of silverhull buckwheat. On the ninth day of September I cut, raked, and put up the Japanese buckwheat. On the 24th of September we thrashed it, and had 12½ bushels of clean buckwheat, one bushel for every pound of seed sown, or at the rate of forty bushels per acre. On the 24th and 25th of September we cut the silverhull. It was good. We had 82 bushels on three acres, or a little over 27 bushels per acre. B. B. TUTTILL.

Gt. Bend, Pa.

NINE AND A HALF BUSHELS FROM FIVE POUNDS.

We bought five pounds of seed of you last spring. Wishing to test it we prepared a plot of about ½ acre by putting on two loads of manure. On the rest of the field, about 5 acres of silverhull was

sown, without manure. The yield from silverhull was 95 bushels, or about 19 bushels per acre; from the Japanese, $9\frac{1}{2}$ bushels, or at the rate of 38 bushels per acre. Both kinds suffered from frost, the Japanese most, as the large straw will have green kernels after the smaller silverhull is all dried up. We have $9\frac{1}{2}$ bushels. None of it is for sale.

McClure, N. Y., Nov. 21, 1887. R. B. FLETCHER.

JAPANESE YIELDING OVER TWICE AS MUCH BUCKWHEAT AS THE SILVERHULL UNDER THE SAME TREATMENT.

I sowed a peck (purchased of you) side by side with about ten quarts of silverhull. The soil and preparation were the same for both, and both were sown on the same day, and also cut on the same day. I could not see that the Japanese ripened any sooner than the silverhull. I did not receive half a crop of either. When thrashed, the silverhull yielded $3\frac{1}{2}$ bushels, and the Japanese over $6\frac{1}{4}$ bushels. This, I think, proves pretty conclusively that it is superior to what we formerly considered best.

Sherman, Pa., Nov. 28, 1887. WILLIS EARLY.

THE MOST PRODUCTIVE.

The Japanese buckwheat is the most productive buckwheat that ever came under my notice. I sent to you for three five-cent packets last winter. I let a neighbor have one; the other two I sowed on four square rods of land, about the first of July. It was very dry here last summer, and the seed did not start until we got a little rain, about three weeks after. The yield was $1\frac{3}{4}$ bushels. As a honey-plant I can not say much about it. The bees worked on it but little; but then they did not work on clover or basswood as they did last year. The honey crop was very poor this year. The average is about 35 lbs. of comb honey per colony.

E. WOOLLEY.

Kimble, Minn., Nov. 20, 1887.

JAPANESE YIELDING AT THE RATE OF 80 BUSHELS TO THE ACRE, THE COMMON BUCKWHEAT LESS THAN 6 BUSHELS.

You sent me $\frac{1}{4}$ lb. of Japanese buckwheat. I drilled it six inches apart in rows, on just 235 square feet of ground. I had a deal of trouble to save any, on account of the chickens; but I saved $20\frac{1}{2}$ lbs. of clean seed, and a few quarts in the chaff. I cleaned it in the wind, which came in gusts, but I gathered it chaff and all. Now please figure: I have fully half a bushel all together, on less than one square rod. That means 80 bushels per acre. I had $22\frac{1}{2}$ bushels of common buckwheat, on four acres, or about $5\frac{1}{2}$ bushels per acre, and none was any better in the neighborhood. To say the least, I am highly delighted with the Japanese.

JOHN E. DODGE.

Little Cooley, Pa., Dec. 1, 1887.

JAPANESE YIELDING FIVE TIMES AS MUCH AS THE COMMON BUCKWHEAT.

I sowed the 1 lb. of Japanese on $3\frac{1}{2}$ rods of ground. It ought to have been on 8 or 10 rods. It was much too thick. It was sown early in the season, on fair loam land, heavily top-dressed with hog-manure harrowed in. The ground was then raked over, and the buckwheat put in with a garden drill. It was hoed twice and weeds pulled out of the rows. Bees worked well on it, but it was so very dry and hot that it did not fill much until rain came late in the season, but more even than the other buckwheat. After the rains came it filled very full, and I thrashed 61 lbs. of nice clean buckwheat. I might have had much more if

I had put it on more ground. I think it yielded five times as much as the common buckwheat, but that was sown broadcast on not quite so good land, and neither top dressed nor hoed.

E. GREEN.

Montague, Mich., Nov. 21, 1887.

862 KERNELS COUNTED ON ONE STALK.

I got $\frac{1}{4}$ pound of Japanese buckwheat from you. I sowed it in the last days of June, and it was so dry that it did not come up till about the last of July. I almost gave up all hopes of it; but as a constant dropping will wear a stone, at last it came. I watched it almost daily. It grew very large, with leaves almost as large as my hand, and I believe nearly 4 feet high. When it blossomed it made me think of a "snowball," such as we have in our dooryard. I never saw the like, the way it filled out. I had my neighbors look at it, and they said the same. To my great disappointment, the frost came while it was yet in bloom, and destroyed it almost completely. Yet with all the drawbacks, I had one good rounding bushel. I don't call that bad for $\frac{1}{4}$ pound, and a poor buckwheat year. Even at that rate, 48 pounds, or one bushel, would have yielded 192 bushels. When I was gathering it I took one stalk, and counted all the kernels. I thought it would make good seed. They numbered 862. I have no doubt but that if the frost had held off a little longer there would have been some stalks holding as many as 1000 or even 1200 kernels.

S. D. KELLER.

Winterburn, Pa., Nov. 29, 1887.

If you will turn to page 874 of Nov. 15th issue you will see that one of the friends counted 1153 kernels from one stalk, so your estimates are pretty close.

TWO BUSHELS AND THREE PECKS OF JAPANESE, AGAINST ONE AND ONE-HALF OF THE COMMON BUCKWHEAT, WITH THE SAME TREATMENT.

It seems as if the Japanese buckwheat frightened everybody, since they did not report. Perhaps they have been shocked so bad by its productiveness that they have not overcome it sufficiently so that they could not write any sooner. I will give you my report. I sowed 1 lb. on a strip 65 small steps long and seven steps wide. When thrashed I had 2 bushels of nice clean buckwheat, and about 3 pecks of light grains that did not get ripe, in front of the grain-fan. This was the second cleaning. At the first cleaning I can not say how many light grains blew out. About the 6th of July I turned the rye stubble to sow it on. It was so dry that I could not sow it until about the 12th or 13th of July. The late sowing and the dry season and early frost, are what made so many light grains; but what was full and ripe were very nice. I really think it is larger in the grain than what the seed was; I was surprised when the grains began to hang on. It hung in clusters. I think it should be called the cluster buckwheat. I sowed a strip one side of this, the same length, and width and at the same time of the buckwheat I have been raising for some time, and which I thought did well. That gave me, when thrashed and cleaned, only three half-pecks. That settles that kind of buckwheat for me. The bees worked on one as much as on the other.

Those vegetable-seeds I got of you in the spring came up to the mark. I shall want more next spring.

WM. H. WEISER.

York, Pa., Dec. 3, 1887.

THE JAPANESE BUCKWHEAT INFERIOR TO THE SILVERHULL.

On page 833 you ask for reports from those who bought Japanese buckwheat of you during the past season. Well, here goes for the Tar-Heel apiarian's experience with the plant. About June 18th I planted the peck I got of you on something near one-third of an acre, that was highly fertilized with cotton-seeds, kainit, and acid-phosphate. It grew to be about 32 to 36 inches high. It had plenty of blossoms, though it was a rare thing to see a bee on any of them. Very little grain was matured—so little, in fact, that I did not think it worth while to save any of it. There was plenty of rain, and there was no honey being gathered from any other source.

KAFFIR CORN AS A HONEY-PLANT.

By the way, the much-prized "Kaffir corn," of which I grew about 2½ acres in the same field, did me much more good in the way of furnishing bee-food, for it supplied them with large quantities of pollen, and they worked it very extensively; no honey that I could detect. It has a fine quick growth of grain and forage food. It matures grain in about 80 days.

The half-bushel of silverhull buckwheat I got of you, and planted early in May, on much poorer land than I did the Japanese, furnished the bees a large quantity of pollen, and quite a lot of honey too, and matured three times as much seed, though it grew only about 16 to 20 inches high. It furnished flowers four times as long as the Japanese did, and bees were working on the flowers of it at the time that the Japanese began to bloom. I should say, that for this climate the silverhull buckwheat is much superior to the Japanese buckwheat as a honey or grain producer.

I have put up, ready for winter, 60 colonies.

Goldsboro, N. C.

ABBOTT L. SWINSON.

Friend S., you should remember that buckwheat does not stand hot weather, and I doubt if you can get either seed or honey of any account from any kind of buckwheat sown so near the middle of June, in your locality. The silverhull you sowed in May had the benefit of the cooler weather earlier in the season. We are glad to have your unfavorable report nevertheless.

THE EUCALYPTUS HONEY OF TASMANIA.

SOMETHING FURTHER IN REGARD TO THE MATTER MENTIONED ON PAGE 875.

DEAR FRIEND ROOT:—Referring to your remarks upon the great black-honey discovery in Tasmania, in GLEANINGS for Nov. 15, I will say that, by reference to the International Cyclopaedia, Vol. XIV., page 217, you will find that the blue gum (*Eucalyptus globulus*, a species of eucalyptus which we frequently use as a medicine in this country) reaches a height of 350 ft., with corresponding girth, on the island of Tasmania. For further information I refer you to an editorial article in June number of the *Therapeutic Gazette*, which I send you by this mail.

W. MCKAY DOUGAN, M. D.

Santee Agency, Neb., Nov. 22, 1887.

We have read the article referred to by friend M., and will say to our readers that the statement of the *Therapeutic* agrees with

what has been already published in GLEANINGS; viz., that as much as 11,000 lbs. of honey was taken from one tree. Although this black honey may never be used for food, if the statements are true it promises to be a valuable article of medicine. I would respectfully beg to get something directly from our subscribers in Tasmania, if any of them can give us any light in regard to the matter.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A GOOD POINTER FOR THE STATISTIC BUSINESS.

FRIEND ROOT:—Your supposition as to the existence of a border-land, fruitful in honey, somewhere between the rain-drenched coast of Maryland and the drought-stricken district of Ohio and westward, is correct. It lies through Central New York, and the contiguous portions of Pennsylvania. To this the wide-awakes of New York city could testify, if they would, since their honey-hawks did, at an early date, sail out, hover over, and scoop from the said section hundred of tons of beautiful honey, at a low figure for this season. This adds weighty testimony to the yearly proof we have, of the great need of our bee-journals being enabled to make a correct weekly report from all parts of the field, by way of town and country secretaries of bee-associations. This should be done for a period of at least six months of the year—from June first to December first. It is to be hoped that our editors will take advantage of this season's experience to impress upon their readers the importance of this help in obtaining fair prices for honey. Our bee-associations the coming winter should make it a prominent theme in their deliberations. The organization of all bee-men, wherever practical, into societies, to gather and forward all information pertaining to their interests as honey-producers, should be effected. The burden of the work will fall where it should—upon the producer.

Three things I have learned this year, which I regard of great value: Tiering up; the use of the slatted honey-board, and the bee-space above the body of the hive. You are enabled thereby to save bees, time, strength, honey, and the good nature of the bees.

J. MEKKEB.

Poplar Ridge, N. Y.

HOW MANY POUNDS OF HONEY TO MAKE ONE POUND OF WAX?

On p. 171 of GLEANINGS it is claimed that it takes six pounds of honey to make one of wax. I think it takes more here in our locality. For several years we have had very poor honey crops—so poor that a swarm of bees hived in an empty hive would not make enough to winter on, while one just as good, hived on full combs and foundation, would make 40 pounds of surplus. This would show that, while the swarm hived on empty frames made two pounds of wax, the one hived on full frames made 40 lbs. of honey.

CHAS. H. TIMMERMAN.

Fayette, Iowa, Nov. 20, 1887.

The old estimate, as made by experimenters years ago, was that it took twenty pounds of honey to produce one of wax, and your experiments seem to again reconfirm it.

More recently, Doolittle, Viallon, and Hasty, have arrived at the conclusion, based upon various observations, that the ratio is about 7 to 1. This is a hard question to get at exactly.

RAPE.

A little experiment again with rape convinces me more thoroughly than ever that it is a grand fall pasture for bees. I sowed a little patch the 16th of August, after early potatoes. It was too late, and did not blossom much, but the bees work on what there is every day that they can fly, even after severe freezing weather and snowstorms. I am going to let it be until spring, and see if that which did not grow up and blossom this fall will do so in the spring. E. GREEN.

Montague, Mich., Nov. 21, 1887.

HOW AN A B C SCHOLAR SOLD 22,000 LBS. OF HONEY ON THE ROAD.

Editor Gleanings:—I live at Dewitt, Clinton Co., Ia. My boy captured one swarm of bees. I bought three more last year. They increased to nine, and gave me 1500 lbs. of honey in one-pound sections. Not knowing what to do with it I conceived the idea of buying more and going out and selling it. The first trip, I sold, in nine days, 9000 lbs.; the next trip, I sold 7000 lbs. My business calling my attention, I got a man to make the third trip. He sold over 6000 lbs. This year I have 25 swarms of bees; have taken from the hives 300 lbs. of section honey, in 1-lb. sections. My bees have honey enough to winter on, and from last year's transactions I have received orders for about 10,000 lbs. of honey, which I am not able to furnish, on account of the scarcity of honey in this section. I will now refer to our own and California honey.

I came in direct competition with California honey, both comb and extracted, and I will say the eastern bee-keepers must confine their efforts to raising comb honey. California can put extracted honey on the market for less money than we can raise it, and it is a very fine article; but the valley of the Mississippi River can beat the world on white-clover honey. The flavor can not be surpassed. It is thicker than the California honey; the comb bears shipping better, and I think our white-clover honey superior to any raised in California, whereas I can not say the same of the extracted. The flavor of our extracted is superior to theirs, but they can furnish it for less money than we. J. M. JACOBS.

Dewitt, Ia., Nov., 1887.

SHEETS OF WAX FOR FOUNDATION; HOW TO KEEP THEM FROM STICKING TO THE DIPPING-BOARDS.

Friend Root:—Use salt brine, weak or strong, tepid or otherwise, for the dipping-boards, and there will be no more trouble with the wax sticking to them. Try this preparation, and you will be pleased with the results. When the brine is used, it matters not about the condition of the dipping-boards—whether rough or smooth, whether of soft or hard wood, nor whether the edges are sharp or square. Temper the wax sheets in warm brine-water before running them through the machine. Try this, and it may, in the future, help you to dispense, in a measure, with lye, starch, washing-fluid, and all other lubricators. Brine-water is both inexpensive and unobjectionable;

besides, it is precisely what bees like and should have. For divers reasons I think the foregoing discovery should be made public, and not be kept a secret any longer. Try it, reader, and report.

M. M. BALDRIDGE.

St. Charles, Ills., Nov., 1887.

LATE POLLEN-GATHERING; IS IT PROFITABLE TO CONTRACT THE BROOD-CHAMBER TO LESS THAN TEN FRAMES?

My bees are at this late date (Nov. 26) bringing in pollen at quite a lively rate; the pollen is of a very light yellow color; and where the bees get it is quite a mystery to me. I can not think that they get it from any natural source, for only last week the mercury was down to 15° above zero. Another peculiarity of the season is, that my best colonies still have drones flying—something unusual for this latitude in November.

I wonder if the answers to question No. 18 have puzzled others as they have puzzled me. When two bee-men disagree, it is common to say that "difference in locality makes a great difference," and so I suppose it is in this case. I can readily see that the bees could be started in the surplus apartment earlier by contracting, but I can't see where the gain comes in. My experience proves to me that it pays better to use ten L. frames in the brood-chamber; and it seems to me that I wouldn't give much for the queen that would be contented with five brood-combs. My bees usually have eight or ten combs of brood at the beginning of the honey season; and in tiering up for extracted honey it is not unusual to find as many as eighteen combs of brood in one hive. What would be the result if such a queen were confined to four or five combs? Is it all "difference in locality"?

WALTER S. POWDER.

Groesbeck, O., Nov. 26, 1887.

THE SCRUBBING MOTION OF BEES—A POSSIBLE EXPLANATION.

I think I can answer Mr. Hanson, of Barron, Wis., who asks, on page 786, as to the "scrubbing motion" of bees at the entrance of the hive. Mr. H. says, "They seem to open their mouths and shut them as though a mouthful were gathered every time they move up and down; but close watching develops the fact that they do nothing." At one time I was very much puzzled by the peculiar actions described above; but just as I had come to about the conclusion contained in your foot-note to Mr. H.'s article I discovered what I believe to be a true solution of the apparent mystery. I noticed that it was when much moisture was in the air that they were engaged in this manner—generally in the evening and the early morning. Even colonies that worked very hard through the day would act thus as soon as it became too late to gather honey, and I think it is the water they are after. Bees know how to appreciate a good thing when they have it—a supply of nice pure water right at their door. The dew, or moisture, gathers in particles too minute to be observed by the naked eye, and the bees "pick it up" just about as fast as it forms. The fact that Mr. H.'s bees gathered no surplus does not prove that it was on account of the mania they seemed to have of "moving up and down all together in a see-saw motion." There may have been many other reasons why "they did nothing last year." I once spent six weeks visiting friends in Barron Co., and I think it ought to be a good locali-

ty for honey. Were your hives properly shaded, Mr. H.? and in what condition was your brood-chamber during the time those bees did nothing? Was it not full of honey? I see your letter is dated June 17. What did those colonies do *this* summer? I should be glad to know.

J. F. DUNN.

Ridgeway, Welland Co., Ont., Can.

REPORTS ENCOURAGING.

AN A B C SCHOLAR'S REPORT OF THE CLASS OF 1887; A RETURN OF \$5.75 PER HIVE.

ON Feb. 1st, 1887, I bought out an old apiary of eight stands, with extra hives, etc., and moved them 100 yds. Mar. 1st I raised three Italian queens, and divided three old colonies for the new queens. This started robbing, and I lost two stands entirely, and several others were weakened before I got them under control. April 1st I moved them 125 miles by freight. There were no swarms, on account of drought and bad management.

Bees are now in winter quarters, and cover ten L. frames and lie out nights. Such rousing swarms I never saw, and they have from 30 to 40 pounds of winter stores per hive. My ledger shows the following account:

Dr. To total cost.....	\$79.45	
Cr. By 400 lbs. ext. honey sold @ 8½,		\$34.00
" extra hives, fdn., etc.,		\$18.10
Add invoice of stock on hand,		\$67.70
Loss and gain to balance....	\$45.35	
	\$119.80	\$119.80

Will an average of 50 pounds of honey per hive do for this dry year, for a beginner? Will a profit of \$5.75 per hive justify my becoming an apiarist? Converse, Tex., Nov. 10, 1887. E. P. TICKNOR.

We should think so.

I started last spring with 3 swarms. I secured 100 pounds of honey, and sold it at 12½ cents per lb. I have now 8 swarms in good order for winter. It was very dry here this summer.

Marine City, Mich. G. J. VOLLMAR.

In the fall of 1886 I bought 15 colonies of bees, and in the spring I had but 11. I increased these to 23, by natural swarming, and not one left for the woods. Nine gave me very nearly 200 lbs. of comb honey.

H. EARTHART.

Counter, Ind.

I have my bees in nice trim for winter. They averaged 25 lbs. of comb honey per colony this season; last season, 100 lbs. I am selling my honey at 25 cents per pound, in one-pound sections.

New Derry, Pa. P. R. CYPHERT.

ONE HUNDRED AND TWENTY BARRELS OF EXTRACTED, AND 7000 LBS. OF COMB HONEY.

I have no reason to complain of the season here. I had 120 barrels of honey, 340 lbs. each, and 7000 lbs. of section honey. I have over 400 colonies now.

W. L. COGGSHILL.

West Groton, N. Y., Nov. 14, 1887.

I sold my comb honey for 23 cents in Milwaukee, of which I had 3200 lbs. I also had 8 bbls. of extracted. I feel as if I had been paid for my trouble this year.

L. H. BALDWIN.

Hingham, Wis., Nov. 4, 1887.

REPORTS DISCOURAGING.

IHAD 20 colonies in good order this spring, from which I expected to get a good lot of honey; but instead of this I did not get one pound of surplus, and only two natural swarms. I had to feed about all summer. Up to Sept. 20, when goldenrod came in bloom, I think there was not a single cell of sealed honey in my yard.

Somerset, Mass., Oct. 4, 1887.

N. S. DAVIS.

The honey crop in this and adjoining vicinities has been a complete failure this year; in fact, it is about the worst ever known in these parts. However, there has been an abundant crop of goldenrod this fall.

M. B. MOORE.

Morgan, Ky.

The season has been poor. The drought, that so affected the yield of honey, also cut farm crops short; but I have not heard a bee-keeper speak discouragingly. We intend to make it up next year.

Ridgeway, N. Y.

GRANT SCOFIELD.

This has been the poorest season for bees that I have ever seen. Some have lost all of their new swarms. I haven't lost any, and won't, on account of their not having any thing to eat.

Paris, Ill.

J. P. ADAMS.

Bees did rather poorly the past season in this part. We got 400 lbs. of extracted honey from 30 hives; quality fine, and increase a little. There was a fine flow late in the fall from asters and goldenrod. All are in very good trim for winter. The summer was too dry for a good honey-flow. Corn and potatoes were but little more than half a crop. Wheat, oats, and all early crops were good.

Disco, Tenn., Nov. 7, 1887.

S. L. GREER.

LAST YEAR'S WINTER LOSSES.

The present has been a very poor year for bees. A great many died during last winter. I suppose it was owing to short supplies the fall previous. I inclose you a list of some of the losses that have come to my notice:

George Witzel, fall count, 12; spring count, 6.	
Jacob Liddick, " " 5; " " 2.	
Levi Seiders, " " 24; " " 2.	
S. Hockley, " " 20; " " 7.	
S. McKinzie, " " 3; " " 1.	
H. Snyder, " " 4; " " 2.	
M. Tuland, " " 8; " " 4.	
David Boyd, " " 13; " " 7.	
John Young, " " 10; " " 5.	
S. Rutter, " " 6; " " 3.	

This spring, during fruit blossom we had a bright spell, followed by another continued wet spell during the blossoming of raspberries and small fruit. I had 8, fall count, and brought all through in good shape.

A. L. LANE.

Duncannon, Pa.

A LATE FLOW FROM ASTER.

This has been a poor honey season. The fore part of the season was very wet, and the latter part very dry. I began to think my little pets would die if I did not feed them; but I was saved that trouble. We have a new fall weed that is spreading all over the country here, and it begins to bloom about the 1st of October, and lasts three or four weeks, and the bees just roar on it as they do on a buckwheat field. Some of my late swarms filled their combs

clear full, not leaving any room for brood. If the weather had been warm I do not know what they would have done; but it was cold and frosty a greater part of the time, so they could not get out.

G. B. JOHNSON.

Ellenboro, W. Va., Nov. 5, 1887.

The fall weed you refer to was probably aster. See reports in the September and October issues.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION NO. 22.—*If an out-apiary be situated near a farmer's house, what compensation, in dollars and cents, ought he or the members of his family to receive for having a swarm, in the absence of the owner? In general, what do you consider it worth to have a swarm for some one else?*

Seventy-five cents.

DADANT & SON.

See answer to No. 19.

O. O. POPPLETON.

I consider it worth 50 cents to have a swarm.

MRS. L. HARRISON.

Twenty-five cents would be enough.

W. Z. HUTCHINSON.

About 25 cents; but if the hiver is not satisfied, give him more until he is satisfied.

R. WILKIN.

Fifty cents, especially if they do a little watching to get the chance to earn that 50 cents.

JAMES HEDDON.

I have always paid 25 cents to any one notifying me of a swarm, but never had occasion to have any one hive them.

PAUL L. VIALLO.

From 25 to 50 cents per swarm, according to the number of colonies. I usually hire some boy by the month, at \$10 to \$15 per month.

GEO. GRIMM.

I do not think I would allow swarming in out-apiaries. I should say 25 cents. It may be worth from five cents to a dollar, according to circumstances.

JAMES A. GREEN.

1. If every thing is in readiness, and the queen's wing is clipped (as it should be), and the party to do the hiving is near by, ten cents would be good pay.
2. That would depend upon the time it would take.

DR. A. B. MASON.

That depends on many things, such as fear of bees, tall trees to climb, distance of farmer's work from bees, etc. Pay the farmer what he asks, or a little more, and then he will work for your interests. If you think you can not afford to pay his price, move on to the next.

G. M. DOOLITTLE.

Why, bless your heart, "It is more blessed to give than to receive." I should expect a warm thank you, and I am sure I should get many kind returns. I have yet to live where the people are not more than ready to reciprocate any such neighborly action.

A. J. COOK.

They should have about 50 cents a swarm. To the second question, I am somewhat tempted to say five dollars. You see, the whole village is looking

on. The bees have been thoroughly riled by the amateur practice of divers and sundry volunteers. The hive, if there is one, is in no condition to hold even guinea-pigs; and not an apiarian tool or convenience within a mile.

E. E. HASTY.

If I am not mistaken, Adam Grimm paid about 75 cents a swarm. In my out-apiaries there is no one to watch for swarms, nor at home either, for that matter; but in the Wilson apiary, Mary persists in hiving any swarm she happens to see out, and then I scold her for it. I think an expert might hive swarms for 50 cents each. I couldn't do it for four times that.

C. C. MILLER.

1. If an out-apiary be run for extracted honey, there is no necessity for any swarms to be hived in the absence of the owner, as there should be no swarms to hive. 2. If a swarm were settled on a low bush, not over 8 feet high, I would have them for 25 cents, if I were there ready; but if I were called to leave other work it would make a difference of the value of time in going and coming from work, etc. In the most of our out-apiaries there is tall timber adjoining the apiary, and swarms clustering in the tops of those trees. It would be more than the swarm is worth to hive it.

E. FRANCE.

QUESTION NO. 23.—*What rent should be paid for the use of ground for an out-apiary, for one season? What amount have you been in the habit of paying?*

See answer to No. 19.

O. O. POPPLETON.

It depends on circumstances.

W. Z. HUTCHINSON.

From 15 to 25 dollars per year.

GEO. GRIMM.

No experience. Offer him fifty pounds of extracted honey.

E. E. HASTY.

Not more rent than if it were used for any other purpose. I never rented any.

PAUL L. VIALLO.

That would depend upon the amount of land used, and locality. I never rented any.

MRS. L. HARRISON.

We pay one-fifth of the honey and 75 cents per swarm hived. We do all the other work ourselves.

DADANT & SON.

I have had no out-apiary, but can get plenty of room for apiaries of one hundred colonies for five dollars.

DR. A. B. MASON.

The same as would be paid for the ground for any other purpose, plus the annoyance caused the owner by the bees.

G. M. DOOLITTLE.

I have always owned the ground my out-apiaries occupied. I would pay the same rental for ground that I would for any other purpose.

JAMES HEDDON.

For the use of ground alone, I think eight or ten dollars would be enough. I have never paid any rent, except in presents of bees and honey. The owners of the ground always seemed glad to have the bees there.

JAMES A. GREEN.

I have no experience; but I think almost nothing. I think any farmer would be benefited by the presence of the bees, and could well afford the space, unless he or his neighbors keep bees. The bees are no damage, and surely the rental should be only nominal.

A. J. COOK.

For 25 or 50 hives in ordinary location, where they are not an annoyance, \$10 or \$15. In a good location, where you can keep three or four hundred hives of bees, and have the exclusive control of the bee-pasturage within a radius of three miles, as can be done in some locations in California, \$100 is a moderate rent.

R. WILKIN.

We pay 25 cents for each colony, spring count. We have no trouble in getting all the places we want at that price. The owner has nothing to do with the bees. We do all the work. All five of our out-apiaries are used by the owners of the land for pastures for farm stock, horses, cattle, pigs, sheep, etc., including poultry.

E. FRANCE.

Perhaps the same rent as would be paid for the same ground for any other purpose, and more, if any inconvenience is caused by the presence of the bees. None of the good people where my out-apiaries are have ever taken any rent, and grumble when I insist on supplying them with honey.

C. C. MILLER.

QUESTION NO. 24.—*When one possesses a series of out-apiaries, is it better for him to try to winter the bees in their several locations, or to cart them all home and winter them in one location? Which way have you been in the habit of doing?*

See answer to No. 19.

O. O. POPPLETON.

Both. It is a matter of convenience.

GEO. GRIMM.

We always winter them on their summer stands, in California.

R. WILKIN.

If I owned out-apiaries, I don't think I should do much carting of them home to winter them.

W. Z. HUTCHINSON.

I have had no experience, but I should try to winter them where they were, if I had such apiaries.

G. M. DOOLITTLE.

As we winter our bees on their summer stands just as they stood all summer, I have not had experience in the matter.

PAUL L. VIALLO.

I have been in the habit of wintering my bees in their own apiaries, and fully believe it to be the best way.

JAMES HEDDON.

In their several locations. Never put your eggs all in one basket, unless obliged to; half in the cellar, and half upon their summer stands.

MRS. L. HARRISON.

I should prefer wintering in their several locations, if there were good cellars or other repository to do it in; if not I should cart them home.

DR. A. B. MASON.

Winter them where they are. That is what we do. It is too great an expense to haul them home, and it does not pay.

DADANT & SON.

That depends; I have always carted mine back and forth, but I should much prefer to leave them, if I were where I felt safe in wintering outdoors.

C. C. MILLER.

Every apiary should be wintered in its respective location. To cart the colonies home and out again in spring is unnecessary work, and an unwholesome job for the bees. I winter on my summer stands, in single-walled hives, with a straw mat on the brood-chamber, and the entrance wide open.

CHAS. F. MUTH.

I have had no experience. D. A. Jones winters the colonies of each apiary at that apiary. I should think that best, as I am sure very cheap and safe depositories could be made, and the expense for a term of years be less than to move the colonies. However, I am very likely mistaken. A. J. COOK.

With our quadruple chaff-lined hives and our selected locations, we prefer to leave them on their summer stands. We never move them to winter. It would be a big job to cart them all home, and then back again in spring. I would not have my bees carted over the roads and back again in spring, if a man would do the work for nothing. E. FRANCE.

Circumstances would vary the case very much. If you winter on summer stands, do not move them unless thieves abound, or some special consideration demands it. Hauling 50 hives of bees six miles, and then back again in the spring, makes two long, undesirable, and expensive jobs. Think twice, or three times before you undertake it, even to get them into an extra-good cellar. E. E. HASTY.

That depends on the mode of wintering as well as on the kind of hives. If the hives can be easily put in shape for hauling, I think it will pay to bring them home, especially if they are to be wintered in the cellar. They should be taken back as soon as pollen comes in the spring. I have tried both ways. With ordinary hives the moving was too troublesome. JAMES A. GREEN.

Perhaps the friends by this time will have noticed in this department that we are putting the questions into groups, each group or groups taking up and centering upon one subject. Question No. 24 closes the six questions on the subject of out-apiaries. It is true, some of the replies have been somewhat indefinite—necessarily so, perhaps, because it is impossible to give a direct answer in all cases; but even indefinite replies, when put together, boiled down and sifted, give pretty nearly a direct answer. We shall continue to group the questions into subjects, for a time at least. In regard to question No. 22, suppose we get at the cost of hiving a swarm in this way: In general, charge on the basis of 50 cents per hour. With a few exceptions it would not take more than half an hour, and in a majority of cases not over 15 minutes, if you have got every thing handy, empty hives, tools, etc. Some colonies might cluster on a limb 12 feet or more from the ground, in which case it might be quite difficult to take them down. When it is necessary to use a ladder, suppose we allow 25 cents extra for a swarm, in addition to the time occupied in swarming it; where there is much difficult climbing, another 25 cents. This would bring the price of hiving all the way from 10 cents up to perhaps a dollar or even two dollars, the price being regulated according to the time spent, and the difficulty in reaching the swarm.—We are very much obliged for the replies to No. 23. Those who intend to locate out-apiaries will then have some sort of a basis to work from. The price will depend perhaps wholly upon what sort of an agreement can be arrived at. This may be true likewise in the matter of living swarms in No. 22.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows, viz. *Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room.* We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

THE BOYS' BEE-HIVE FACTORY.

A FURTHER ACQUAINTANCE WITH OUR
OLD FRIEND (?) MR. SHIFTLESSNESS;
WHAT HE DOES, AND HOW HE
GETS ALONG.

YOU will remember that we left Jimmie and Sam "slicking up" their work-shop, and that Mrs. Green, after having instructed them how to go to work, and what to do with the refuse, left them: The two boys worked together for some time in silence. Sam sorted and put away the boards, while his companion was master of the broom. As the work progressed, their zeal to wipe out all traces left by Old Shiftlessness grew more and more apparent.

"Well," said Sam, "it is not such a very bad job after all."

"No, it's just fun, ain't it? My! won't we surprise your ma when she sees what we've done?"

"I rather reckon she?"—

"By cracky!" said Jimmy, interrupting, "what's this down in the litter of dirt? I swan, it's the hammer we've been hunting all over for, as sure as"—

"I didn't know Mr. Shiftlessness ever hid tools in that way. We might have hunted for months, and it never would have turned up. I recollect now of having used it in that very place, and I guess no one has had it since," said Sam, as he looked at the hammer.

"Yes, your pa said Old Shift. never put tools away, and that he's more like some fellows than he is other fellows. Leastwise he's not like me."

"Humph!" said Sam, as he pulled over a pile of boards near the saw-table, and espied the missing wrench. "What do you call this? You acknowledged, the other day, that you had the wrench last, and here is just exactly where you were working." Then holding it up before his playmate's

eyes he said, with an air of triumph, "If I am shiftless, here is a sample of yours. Come, let's shake hands on that, for we be brethren."

Jimmie was just on the point of retorting, when, observing Sam's good-natured twinkle, and his allusion to brotherly kinship, he softened. They pushed forward their work, and by noon every missing tool turned up from its hiding-place, just where Old Shiftlessness had left them. When the boys had completed their work, Shiftlessness stepped out and Order stepped in. The noon whistle blew; and as the boys proceeded to draw on their coats, they remarked to each other that it looked just a little better, and, besides, they could find things now.

As Sam sat eating at the dinner-table, he recounted how they had driven Shiftlessness off the premises.

"You haven't quite yet," said his sister Mary, casting sly glances at her brother's hands.

"My hands are just as clean as yours. They are tanned, that's all. I will leave it to ma."

So saying, Sam placed one of his hands beside that of his sister. Sam had been working in the dust and dirt, and, not having washed his hands, it is needless to say there was quite a contrast.

"Yes," said his mother, "I did not notice your hands as you sat down to the table; but I must agree with your sister, that Mr. Shiftlessness has not yet made his departure."

Sam then appealed to his father, but obtained no better satisfaction.

At the request of his mother he got up and washed his hands, which, when he had done, he remarked, as he again took his seat, "They don't look much different from what they did."

"I think they are a decided improvement," said his mother.

"Yes," said Mr. Green, "your mother and sister were right. If you have finished your dinner I will now take a little time in showing you how to arrange your tools."

The two started for the barn-loft. On arriving there, Mr. Green said:

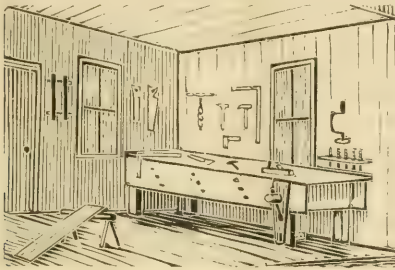
"Well, well! you have done your work much better than I thought you would. Why! your floor is very clean. I think I see evidence of your mother's supervision." "Yes, ma did show us a little this morning; but we did all the work."

"You all deserve credit; but I see that your tools are still scattered over your bench in more or less confusion, and Old Shift., as you call him, has a fashion, when he finds tools thus, of getting them on the floor, and, by degrees, slipping them into hiding-places."

"They are all picked up and put on the bench. What more could you do?" said Jimmie, who had just now formed himself into one of the trio.

"Very true; but you can not tell at a glance whether any tool is missing. For instance, I want a tool. I go to this bench and fumble them over. Perhaps I find it, and perhaps I do not. Time is lost in either case, particularly the latter. Well, suppose

I do not find it. Just when I want it most, this is my first intimation that it is missing, and it may have been gone for some time—all because I did not have a place for the tool in question. You have both heard, 'A place for every thing, and every thing in its place.' If this is observed in the shop when a tool is not in its accustomed place, it is at once apparent. Let me show you how to tell where each tool belongs." So saying he picked up a saw, placed it broad-side up against the side of the work-shop over the bench. Through the hand-hole he drove two nails. "There," said he, "we will let your saw hang there for its place."



A PART OF THE BOYS' WORK-SHOP.

"But, how are you going to tell that it belongs there?" said Sam.

Without replying, Mr. G. took a pencil from his pocket. With this he inscribed a pencil-mark clear round the saw, the pencil following closely all the indentations. Then taking the tool off its hangings, he said, "There, that is a pretty good picture of a saw, don't you think? It is only an outline, it is true."

"That's so," said Jimmie; "any one ought to know where that saw belongs."

Mr. G. then did likewise with a hammer, a hatchet, and a square. When these tools were removed from their hangings there was a perfect picture of each on the side of the shop, showing just exactly where they belonged, the size, shape, and kind of tools. Mr. Green then left them.

"That is just splendid," said Sam, as he took the monkey-wrench, drove a couple of nails for it to hang on, and then inscribed it with his pencil as it hung on the wall.

"Yes," said Jimmie, "the picture looks just like a monkey-wrench."

The boys did likewise with the rest of their tools; and when they had got them hung up over the bench, that portion of the shop looked like the cut given above. You will notice that the square, a small hammer, and a saw, are lying on the bench, but the pencil-marks on the wall show where each belongs. If you could have seen this portion of the shop just as Old Shiftlessness left it, you would not have recognized it.

At the other end of the shop, near the buzz-saw, there were sticks, fragments of hives, frame-stuff, sawdust, and general confusion of every thing. At the opposite end, or near the work-bench, there were tools, nails, shavings, sticks, etc., more or less mixed together.

JUVENILE LETTER-BOX.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

FREEZING AND UNFREEZING BEES.

Since the November 15th issue, only three have responded to my call for experiments, on how long bees will remain in a chilled state, and not die. Perhaps it is a little early yet to get very many reports. In a good many localities, I am aware that real cold weather has not yet begun; and a continued cold is necessary for proper experiments. I propose that you young friends experiment just the same. As there probably will be colder weather during the next month you will have better opportunities to experiment. I want you to follow carefully the instructions I gave in our issue for Nov. 15, page 869; and if the prizes offered on that page are not satisfactory, you can select any ten-cent article in our premium-list you choose, if you send in a report of your experiments with freezing and "unfreezing bees." I want to see a whole lot of letters from all localities, where there is cold weather; and then, you know, when we compare the results of your experiments—well, we shall know more than we did before, won't we?

FROZEN BEES REVIVING AFTER 42 HOURS.

Monday, Nov. 28, at 7 o'clock P. M., I put two dozen bees on the snow and two dozen in a queen-cage where they were exposed to a freezing temperature, and I took, Tuesday, 7 A. M. (according to your rules), two bees from the snow and two bees from the queen-cage and put them in a warm place. Part of the bees revived and crawled around. At 7 o'clock, Tuesday P. M., I took two bees from the snow and two bees from the queen-cage, and part of the bees revived and crawled about. At 7 o'clock, Wednesday A. M., I put the required number of bees in a warm place, and part of them revived, but were rather weak. At 12 o'clock Wednesday, at noon (for I didn't think they would live until night), I took the required number of bees and put them in a warm place and they revived so they could move their beak and legs a little. At 7 o'clock, Wednesday P. M., I put about half a dozen bees in a warm place, and there wasn't any life to be found. Reckoning the time up it would be 42 hours, and the bees were filled with honey, for I examined them. If you think I am entitled to a jack-knife, I should like it.

Massena, N. Y.

HERBERT HUTCHINS.

Most surely, friend Herbert, you are entitled to a jack-knife; and ere this it is speeding on its way to you as fast as steam can carry it.—So you could not make the bees revive after 42 hours—not quite two whole days. Well, that is pretty good for the first report. You followed instructions exactly, but you did not tell us whether the bees from the queen-cage revived any quicker than those taken directly from the snow. The object in getting the little folks to take bees both from the snow and from a queen-cage was to see what moisture had to do in determining results—whether bees that are perfectly dry will revive after a longer period in a frozen condition than those which

have been subjected to more or less dampness and wet in the snow. If I did not make this clear in our issue for Nov. 15, page 869, will the juveniles please take notice? The next letter we have was written in the interest of Master J. Curtis Haines, of Mohawk, N. Y. It is as follows:

FROZEN BEES NOT REVIVING.

In answer to your problem for little folks, I got a pan of clean dry snow, just after it had fallen, set it in the barn to keep it soft and light, and on Nov. 30, about 3 P. M., I opened a strong colony, smoked slightly. In a little while I took a small handful and dropped them in the pan of snow. As soon as they were chilled I put some in a dry paper box, and set them in a small open building. Next morning we brought two of each lot into the house, put them on the mantle near the kitchen stove, where it was nice and warm (not hot), but they showed no signs of life. We left them in all day, and got more of each lot, but they showed no signs of life at all. To-day I brought more in, but could not see any signs of life. They are quite dead. We opened some, and they seemed to be filled with honey. When we put the bees in the snow in the first place, it thawed some on the south side of the house, and the bees were bright and active, and seemed quite strong; but it was very cold that night. Next morning the thermometer was down to five below zero, and the next day was very cold. The thermometer was at zero. So you see if there is any thing in its being cold, they had the benefit of it.

This is in the interest of our little boy, who is after that knife you offer. If you think it worth it, you may send it to Master J. Curtiss Haines.

Mohawk, Herkimer Co., N. Y. J. C. HAINES.

Yes, Master Curtis, we send you the knife.

The following is a letter from a boy who, although 61 years old, is still full of youthful enthusiasm. It reads as follows:

FROZEN BEES REVIVED ON THE FIFTH DAY, AS REPORTED BY A BOY 61 YEARS OLD.

You wanted the juveniles to experiment on bees, and report. I am a juvenile of 61 years, but here it goes. I shook bees on the snow. Three days after, I took forty, put them in a fruit-can cover, and placed them on the reservoir of the stove. All came to life. On the fourth day, 35; all came to life but two. On the fifth day I tried 25, and they all came to but four. The night of the fifth day it rained all night; the sixth day I tried 20, all were dead. The snow all went off last night. During the fore part of the trial the ice was two inches thick.

J. B. WHITON.

Ithaca, Gratiot Co., Michigan.

We are exceedingly obliged, friend W., for the valuable facts you furnish. We shall be glad to have you experiment further in the same line. While you drop some bees in the snow as before, put others in a dry place, where they will be subjected to a freezing temperature, and let us hear from you again. If I am correct, the results of your experiments have exceeded those of Mr. Doolittle by two days. Now, boys and girls of younger years, see if you can not beat grandpa Whiton. If you can, we will award you any two of the presents as given in our issue for Nov. 15. As for grandpa W., we will arrange it with him.

BEES, CARP, ETC.

We have been hauling water for the last four or five weeks. We have dug a pond which will hold a lot of water. I have been going to school about two weeks, and have had a happy time. Pa and I have fixed our bees for winter. We have about 125 colonies. We are building an addition to our shop, to saw logs for our own use. We are fixing to commence about Jan. 1st. We have our fall work about all done up. RAY MURRAY, age 12.

Ada, O., Nov. 26, 1887.

LOTS OF LOWER VENTILATION.

My name is Winfield Markham, but my papa and mamma call me Winnie. I am seven years old. My papa packs his bees with chaff and maple leaves. He thinks they want lots of lower ventilation, and not too much above. I feed the hens every day, and go one mile to school.

WINNIE MARKHAM.

Ellington, Chaut. Co., N. Y.

THE GROWTH OF CARP.

There are a good many flowers here from early spring till late in the fall, and I intend to keep bees next year. My grandfather has 36 stands of bees, and thinks that it is a very profitable business. I like GLEANINGS very much. The State Fish Commissioner placed 13 German carp in the fountain in a park in this city, and in the fall of the same year they took 3 pecks of $\frac{1}{4}$ -inch carp out.

CHAS. COX.

Quincy, Ill., Nov. 20, 1887.

A COMFORTABLE HOME FOR THE CHICKENS.

I have 17 chickens, and so I built a house for them 6 ft. by 12, and then put another ply of boards all around and packed six inches of clay around and on top of the house. Then I divided it into two rooms, and made a door into each, so tight that weasels and other small animals can not get in. I made a yard on the east side, 6 ft. by 12, of long strips 2 inches apart, and then I made a door at the south end. I am going to school.

JOHN H. MOWBRAY.

Sarnia, Ont., Can., Nov. 24, 1887.

This is right, friend John. If we keep chickens we ought to give them comfortable homes, don't you think so? I wonder if all the little folks who keep bees have given them as good homes as you have your biddies.

BUMBLE-BEES, AND DID THEY HIBERNATE?

When we boys fight bumble-bees, and can not whip the nest out, we get Mr. Bubmire to help us. He will take off his hat, pinch them with his fingers, and does not get stung. Bumble-bees are very curious. They live in small holes in the ground, or in log dirt, lined with moss or grass, through the winter. We have dug them out. In the spring, when it is warm enough, they start for work.

ELBERT EVINGER.

Tecumseh, Darke Co., O., Nov. 27, 1887.

Thank you, friend Elbert. You say you "dug them (bumble-bees) out." Do you mean that you did this in the winter? If so, did you find them alive? If you did, perhaps you have discovered something that the old folks did not know before. Will you tell us more about it? Hibernation, as found in the heading, is a big word. It means—well, living through the winter in a sort of sleep, without eating any thing.

OUR HOMES.

Therefore I say unto you, Take no thought for your life, what ye shall eat, or what ye shall drink; nor yet for your body, what ye shall put on. Is not the life more than meat, and the body than raiment? — MATT. 6:25.

WHEN I left home on Monday evening to go to the Michigan State Convention, I felt very much as if I ought to stay at home; and, to tell the truth, I did not want to go very much. It seemed like tearing myself away from duty, and the business that needed me here; and for a good while I could hardly feel reconciled to the thought of breaking the threads of home matters, and fixing them on something else; but I tried to think, in the language of our text, that God would provide work for me, and that it was my duty to go away from home and mingle more with my fellow-men and the great world at large. An hour later, and I was waiting at the depot in Elyria for the incoming train. But it seemed wicked for me to sit there idle when there was so much to be done; and yet I knew from previous experience in like circumstances that there was probably plenty that God would have me to do, and perhaps very near by. I have no right to speak for others; but I am sure that God calls on *me*, in like circumstances, to get acquainted, and to be doing something. A bright-looking young man near the stove remarked to a companion the time, as he looked at his watch, and I added that we had just about an hour more to wait. His next remark indicated that he knew me, and I soon found that he was the son of an old neighbor who lived near us on the farm, and that he was now located in a neighboring town where he had been practicing medicine for the last five years. I recognized the town as one wherein I had labored to build up the church and Sunday-school, and I was glad to have him tell me about it.

"I suppose, friend —, you have preaching now every Sunday, of course? When I was there, the minister came from an adjoining town every other Sabbath; but now I presume you have a regular pastor."

"I am sorry to say, Mr. Root, that it is just as it was years ago. The church is not strong enough to keep a minister, and have preaching every Sunday. Why, there are only fifteen or twenty members in the church, all together."

"They were mostly women at the time I was there; is that the case still?"

He replied, to the effect that there were only four or five male members in the church. Said I, "And of course, friend —, you are one of these four or five faithful ones?"

He cast his eyes down, and admitted that he was not. In his previous conversation he told me that he loved the Bible and Christianity, and remarked to the effect that he was hungering and thirsting after righteousness. I think he said his wife was a member of the church, and he admitted that there was no reason why he should not be among those four or five who were helping to bear the cross of Christ. I told him, as well as I knew how, what influence a

physician of the town might exert over the people, and I reminded him that he could not very well exhort others to accept Christ, unless he stood up boldly before men and practiced what he would have others do. In reply to my questions, he declared there was nothing in his life or habits that he would have to give up, to become a professor, and that it was only because he hadn't got around to it, or got ready, that he had been all these years aloof. The minutes did not drag any longer. As we talked, an old gentleman who sat near came up to us, and I saw by his looks that he was interested. As I parted from my young friend on the train, there was a bright happy look in his eye as he gave me his hand and thanked me. I told him I should pray for him, and that the best news I should ever hear of himself was that he was making Jesus first, and all else secondary.

At the convention I met a man and his wife with whom I plead some years ago on exactly the same subject. Their family was growing up around them, and they were not members of any church. The lady confessed to me that she had been conducting a Sabbath-school which she had been instrumental in starting in their neighborhood, because there was no church; but neither herself nor husband had united with the church nearest them.

Now, this kind of exhortation is all very well, providing the one who exhorts makes his life in keeping with what he professes. May be I was getting a little vain of my ability to lead others, and may be I was thinking I was getting to be a pretty good sort of Christian. In any case, I had a reminder very soon that I needed to pray for myself as well as for others.

I was ready to start home; but for certain reasons I wished to purchase a ticket at first only to a neighboring city, and I asked the agent how much it was. He said \$3.35. I gave him four paper dollars. The train was ready to start, and he hurriedly handed me a silver dollar, half a dollar, a dime, and a nickel. In my haste I came pretty near not counting it; but when I got the silver dollar in my fingers, and held it up, it occurred to me that I ought not to have a whole dollar back in change. In other words, he had made a blunder. Now, I am ashamed to say it; but I guess I had better acknowledge that self suggested putting all the change in my pocket, without telling him. I believe I have boasted several times that the "almighty dollar" never tempted me from the path of duty; but there I was, actually coveting that bright round silver dollar that I knew was not my own. I did not hold it in my fingers, I presume, a whole second; but in that second, self (or Satan) whispered, "You must have misunderstood him. He probably said \$2.35." Then came the thought, "Why did he not give me back one of the paper dollars I gave him?" But self put in again, "There is not time to bother with it now, anyhow; besides, it is *his* business—not yours. You gave him the money, and he gave you back what you ought to have." Self seemed to get a little bolder here, and added, "Your expenses on

this long trip will be larger, doubtless, rather than less than you had calculated; better hurry up, or you will lose the train." I can not tell even now, dear friends, why such thoughts should have come into my mind. It seems, as I think of it, that it was a remnant of that old life before I belonged to Christ Jesus. Then I used to have such temptations, and I used to yield to them, too, thinking, poor silly fellow! that I was adding to my stock of this world's goods. Why, it made me fairly tremble as I reflected of a professor of religion, and one who even presumes to point out the way for others, listening to such suggestions as the above. I do not know how long it took for me to recoil with my whole nature, and bid these evil thoughts be down and away, as I would speak to some ill-mannered cur that, with muddy feet, might try to spring up and soil my clothes. I said, mentally, "Get thee behind me, Satan; do you suppose I am so silly as to think I could be happy with a dollar that is not really my own—a dollar for which I have rendered no sort of equivalent? For shame!"

I believe it was Moody who once said that no man could be a Christian, with a single dollar in his pocket that belonged to somebody else; and I believe we should have better Christians if there were more who felt convinced of this. If this be so, you had better miss a hundred trains; nay, you had better lose even your life, than to go off coolly and deliberately with only a single dollar in your pocket that is not justly your own. "What shall it profit a man, if he gain the whole world and lose his own soul?" "My friend, I gave you only four dollars," said I.

He looked at me, somewhat embarrassed; and as I showed him the change which he had given me back, he took the dollar and colored a little to think I had caught him, a ticket-agent, in such a blunder. I thought if he could forgive me, I could forgive him; and I took great pleasure in remarking to him that I did not want a dollar belonging to anybody else; and with a good-natured smile I suggested that "mistakes will happen," etc. He caught my eye, and his face brightened. The happy look that shone forth from my face seemed to have touched his spirit just right; and who knows but that the glimpse of sunlight went along with him as well as along with me? As I thought it over, it occurred to me that possibly God was trying me as he tried Abraham of old. Is it not possible that he is waiting and watching for men whom he can trust? Who knows but that he has been saying, "I have a great deal of work for Mr. Root to do for me, and I want to be sure that he can resist temptation?" You know he said to Abraham, "For now I know that thou fearest God."

This trial, however, was but a preface to another. May be you will come to the conclusion that your old friend A. I. Root is but a poor weak sinner after all; and if you do, dear friends, you will think just as I do about it. I will now explain to you, that the object of my journey to the great city of Grand Rapids was to see the immense let-

tuce-houses, which I had learned at the horticultural convention were there. I had also learned they had a new variety of lettuce, superior to any thing else in the world. It was not only specially adapted to greenhouses, but it grew very large—nearly a foot high; and by careful selection it had been made to grow so white and crisp that it almost rivaled the "White Plume" celery. I knew I had but a limited time to hunt up the greenhouses, if I reached home Saturday night; and I felt as if I must do that in any case. Let me digress a little. The night before, I had been obliged to travel till eleven o'clock. The ride was a long and lonely one; and as I changed trains for the last hour, I stepped into a car where a few men were assembled together near its center. One young man stood up addressing the crowd as I came in. At my entrance he stopped and said, by way of apology to the new comers, "Friends, I have just been telling a little story; and with your permission I will continue it."

The attitude of the man, and his appearance, suggested at once that he was a commercial traveler, or drummer; and former experience made me feel that, perhaps, now was the time to show my colors, and that perhaps I had better show them quickly. I replied, "My friend, we have no objections to your continuing your story, providing it be such a story as fathers of families ought to hear; or, if you choose, such as Christian men ought to listen to." He gave me a smile that was not very assuring—at least I thought so—and continued. The story was one calculated to attract the attention of his audience, but it seemed to have no particular point either way. He told another one that pretty unmistakably pointed toward the cross of Christ, although I inferred that his audience did not see it. Then he gave them a short talk—such a talk as you might imagine a converted drummer might use, if he were using all his past experience and tactics to plead for the Master. It was evident that the audience was a little undecided. He attempted to sing a hymn; but for some reason, perhaps for lack of sympathy, it was not very well done, and he was losing ground. I thought he needed an encouraging word, or just the least bit of sympathy from some one of these men of the world who were holding him, as it were, at arms' length. I gave him that sympathy and assistance. He sang another hymn, and with such touching pathos that it won almost every heart. They gathered nearer him and asked him to go on. He was a comparatively new-born soul, and his words were interspersed with such phrases as traveling men use; but his teachings were sound. He asked me if I was a minister. I assured him I was not, but that I was, like himself, one who is preaching Christ wherever the Lord led him, in his own humble way. We exchanged experiences and strengthened each other, and I did not see him again until he unexpectedly came into the car when we were nearing the great greenhouses. I asked him some questions about the city, but he could not answer; but a brother commercial traveler, overhearing our talk, gave

me just the information I desired, directing me to get off at the first station, and telegraph to the friend who had promised to show me the greenhouses, telling where I would be, and at what hour. I want to say here, that this trip surprised me as much as some others, to see how ready wealthy and busy men were to throw aside their business to show me around, and assist me in working up any of these fancies of mine. This friend in Grand Rapids, although he has over 70 acres devoted to fruits and market-gardens, with six or seven greenhouses, besides a store for cut flowers, left his business, procured a horse and carriage, and met me at the depot. As it was after dark, he drove me several miles to the lettuce-greenhouses, got the proprietor to show us through with a lantern, brought me back to the city, showed me their public buildings and matters of public interest, and refused to accept even what he was out of pocket for his efforts in assisting an entire stranger. Had I not taken the part of the converted drummer, I feel sure I should not have had faith enough in my fellow-men to mention my wants on the cars; and over and over again I have been glad I took pains to get acquainted with those with whom I was traveling; in fact, I can not remember that I have ever had any reason to regret having formed acquaintances while traveling. I suppose, of course, we ought to use judgment and wisdom in deciding whom to approach in this way.

Well, the sight that met my gaze in that greenhouse was worth to me the whole trip to the State of Michigan. The plants were the brightest and thriftiest of any thing in the vegetable or floral kingdom I had ever beheld. They were all exactly alike. The great bed was covered as if it had been planted with fringed plumes of ostrich-feathers. They were not exactly white, but of a beautiful *creamy* whiteness. The stalks were white and crisp. Other beds and other greenhouses showed the beautiful new variety of lettuce in every stage of growth, from the seedling just bursting through the soil, to the plants just ready for market. The owner of the greenhouses was an entire stranger to me; furthermore, I knew he was averse to letting strangers get hold of the new lettuce. He had brought it to its present state of perfection by many years of careful selection and study. The plant is not only specially adapted to greenhouse culture, but it is a rapid grower, free from rot, and handsomer than any thing the world has seen heretofore. He was very kind and obliging, and he reluctantly consented to sell me a few plants. When I wanted to know if he would let me have some of the seed, there was evidently a conflict between his generous and obliging nature, and his preference to keep the business in his own hands. I saw it, and frankly told him he need not let me have any of the seed or plants unless he chose. I mentioned that I would willingly pay him a large price for even a few seeds; but as that would very soon give me opportunities for raising seed for myself, he preferred not to do it. He said he had already refused a consider-

able sum for even a few seeds. Now, I was so much in love with that lettuce that I felt almost determined to have some plants or seeds to raise in my own greenhouse; but could I as a Christian, or even as a gentleman, insist on it when he preferred not to sell any? "Render unto Caesar the things that are Caesar's, and unto God the things that are God's." The tussle with the almighty dollar came up before me, and my little prayer of "Lord, help," came up. Yes, and an addition to it came up in this wise: "Lord, help thy servant to do in this matter as in all others, as becometh one who is constantly teaching others to do *all* for the honor and glory of God."

This friend supplies seed or plants to the greenhouses around Grand Rapids, who raise his kind of lettuce, and so they have succeeded in keeping this industry among themselves. Some might call it a little ring in the lettuce business; but, my friends, is there any thing wrong in such a ring, if those who own the seed and own the business choose to form such a one? May God help me to be careful about accusing people of forming rings; and I really believe of late I am beginning to be a little suspicious of those people who are ready to accuse *others* of having rings. My friend consented to sell me as much of the lettuce as I wanted, but he preferred I should not grow it. Even with honest intentions, somebody might steal one or more of my plants, and pretty soon the seed would become public property. If it were *mine*, as you well know, it would be public property at once; for I have other avenues through which money comes. Self whispered, during the talk, that I could take some of the leaves or heavy stalks of the lettuce and make them take root in sand, as greenhouse-men do in propagating, and thus get seed. But suppose I did; could I ever find happiness in taking it in this way, from the good friend who took his lantern and showed me his lifework in his beautiful greenhouses? Even suppose somebody did get genuine seed by such underhanded means, would the world believe such a person, and patronize him? In thinking it over I feel to rejoice that the world demands, especially of late, that a man be *strictly* honest. When I can, by permission, make this seed public property, and scatter it among you in five-cent packages, then I will do so and feel happy over it, and not before. When all men arrive at such a point that they will refrain from taking any undue advantage, even though they have the opportunity, without violating any law, or even without being discovered, then will the millennium be near at hand. I came away happy. I had not got the seeds or plants I longed for, but I had something better — the approving voice in my heart of the great Creator who gave us the lettuce and the bees, and all these things to train to our wants and wishes and notions.

A few minutes more, and I was almost startled when the agent of one of the great union ticket-offices handed me *two* silver dollars more than I ought to have. I felt glad in my heart, however, to find there was not even the faintest trace of a desire to keep

them. If Satan made just a little impression the other time, he didn't a bit here; and with it came the feeling, "This money *all* belongs to the Master, and not to myself." So long as he supplies me with all I want and all I need, why should I covet any thing? Oh, the unsearchable riches of those who have their whole trust in the resources of Him who is Lord of all!

All at once one of the friends whom I had left at the convention came into the car where I sat. He was on the way home, and was as much surprised on seeing me as I was on seeing him. I did not know how soon he would be called on to leave me, and so I came, pretty soon, squarely up to the work I felt the Master had given me to do. Said I, almost abruptly,—

"Friend —, you are a Christian, I believe."

He looked up at me with a smiling face, and said:

"Mr. Root, just the very moment my eyes fell on you as I came into this car, I felt that I should be called upon to meet this question. And now I want to tell you that I am glad that you have said just these words to me, even though it be true that I am not and never have been a member of any church. The reasons why I have never united—that is, if they are fit to be called reasons—are, that the church I had thought I must unite with, if any, is not near at hand. I have been helping in another church, and my wife and I have been studying the Bible, and have even gone so far as to have family prayers, but we are not members of any body of Christian people. I have known my duty, but some how I have longed to have somebody assure me, as you do, in your earnest way, that it was just what I ought to do."

The church he mentioned is a new one, in a new section of country, and it is doubtless weak and very much in need of the energy, intelligence, and spiritual strength which these two young bee-friends can give it. Its influence for good on the community round about will, without question, be ever so much greater for having these two come forward and take a bold stand, and let their faith be shown by their works. As we parted he took me by the hand and promised that, if his wife approved (and he felt sure she would), they would at once, before another Sunday, go to the pastor and tell him of their determination and wish to become members of the church. A strange feeling comes over me when I think of his remark, that he expected me to labor with him on this very question. If such responsibilities are coming upon me, how great is the need that I be pure in heart and honest in deed! "Lord, help!" comes up again and again; and when I think of the little conflict—yes, perhaps even *feeble* conflict—over that bright round dollar, how earnestly can I pray that I may be cleansed, both soul and body, from all temptations of a like nature, taking no thought for what we shall eat or what we shall drink, nor yet for the body what we shall put on; for is it not true, that a life with Jesus is incomparably more than meat or raiment, or *any thing else* that the world can offer?

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

PINE STRAW AS A SMOKER FUEL.

A FRIEND from the South, W. W. Wilson, Punta Rossa, Florida, sends a package of "pine straw" as he called it, to be tried in the Clark, as a smoker fuel. The material was evidently the spines, or leaves from a species of pine-tree—the spines of which were about a foot in length. From the package sent, I took a bundle large enough to slip down into a Bingham, having first lighted the bottom ends. A few puffs of the "Doctor" gave me a beautiful smoke, dense and curling. It lasted well, and did not diminish in volume. In consequence of the length of the fuel, I did not try any in the Clark, though it now occurs to me I might have coiled it up, in which case I have no doubt it would have burned as well as in the Bingham. Those who are so situated as to be able to get this pine straw, such as our friend sent, would do well to try it; and if satisfactory, lay in a stock of it for next season's use, to dry.

THE SMOKER QUESTION, AGAIN.

As our friend R. L. Taylor, on page 845, has spoken so vehemently in favor of the Bingham, after having used the cold-blast, perhaps the testimony of another friend who has used both smokers may be interesting right here. He says:

I have read in GLEANINGS the discussion in regard to smokers. I used Bingham's 6 or 7 years. For the last year I used Clark's. It is a comfort to use it. Bingham's is about the nearest to a disappointment it can be. It is generally out when I want it. Sometimes it is too hot, and then again it throws sparks among the bees. I. B. WHITON.

Ithaca, Mich., Nov. 21, 1887.

I do not give place to the letter to in any way detract from the merits of the Bingham smoker, but to show that some are just as vehement in praise of the Clark as others are of the Bingham. While I recognize and have experienced some of the defects mentioned by the friend above, I have not found them quite so bad. Isn't it a good deal in notion, after all, friends? We can't all see things alike.

Here is a letter from another friend:

A SUGGESTION ON BINGHAM'S SMOKER-TOP.

I see that Ernest burns his fingers, and empties the contents of the Bingham smoker into the hives. Now, did it ever occur to him that, if he would simply connect the cone and fire-box on the side with a small hinge, riveted securely, it would be the easiest thing in the world to open and close, without burning fingers or spilling fire into hives? I have used mine in this way two years. I am well pleased; but I would not use it if I were obliged to pick up and place the cone off and on in the old way.

O. G. JOSEPHANS.

Owosso, Mich., Nov. 26, 1887.

I have several times thought myself that a hinge to the top would be a convenience, and perhaps quite an advantage. But perhaps friend Bingham does not look at it in that way.

TOBACCO COLUMN.

UNDER the influence of GLEANINGS I have quit the use of tobacco, having smoked my last cigar about two months ago; and if I am entitled to a smoker, and you send it, I will willingly pay for it, if I ever resume the habit.

G. SMITH.

Alpha, O., Oct. 24, 1887.

Mr. Chas. M. Lynch has promised to quit using tobacco. Please send him a smoker. I will pay you for it if he uses it again.

E. E. GUY.

Trenton, N. J., Nov. 28, 1887.

I have quit the use of tobacco after seventeen years' chewing and smoking. Send me a smoker. I promise never to use it again, or I will pay for smoker.

W. F. WINSTEAD.

Delhi, La., Oct. 22, 1887.

I told you last fall that, if you would give me a smoker, I would quit the use of tobacco. I quit last fall. If you see fit to send me one, I will pay you for it if I use the weed again.

S. W. WHITE.

Liberty, Mo.

BROKEN HIS PLEDGE, BUT PAYS FOR THE
SMOKER.

I am sorry to tell you I have broken my pledge, but I must send smoker money, which, according to promise, is the price of two, \$1.20. They came by mail.

J. A. KIME.

Fairfield, Pa., Nov. 25, 1887.

About the first of the year, Mr. Van Fradenburg sent for a smoker for a young boy, who had been brought up in tobacco, and had used it for some time. At the fair this fall, he was led away. We are very anxious to have him try again. I have persuaded him to let me ask you to give him another trial. Shall we send you the money, or shall we try him again?

MRS. E. VAN FRADENBURG.

Vinton, N. Y., Oct. 17, 1887.

Try him again, by all means, my friend.

INTRODUCING QUEENS.

A SUGGESTION ABOUT VIRGIN QUEENS.

PEOPLE often ask me how they shall introduce their queens. I tell them how I would treat a valuable queen. It is thus: I go to the hive that is to receive her, take out all the frames, finding and caging the old queen. I then put the frames and bees into another hive, which I set on the old stand. I clean out the old hive, being sure that every bee is brushed out. I spread a sheet in front of this empty hive, and shake the bees off the combs, putting them at once in this hive. I then sprinkle the bees with water sweetened with honey, and scented with some strong essence. I then hive them as a new swarm, daubing the queen well with honey, and letting her run in the hive with the bees. I have introduced many in this way, and have never lost a single queen. Some one (I think Mr. Doolittle) says, "Cause the bees to first fill themselves with honey before shaking off the combs." This would be the better way. I have used this plan of introducing for a number of years, and, as I said before, never yet made a failure. Now, I should like to ask you, Mr. Editor, why this

will not do for young virgin queens as well as for the fertile queens.

M. A. KELLEY.

Milton, W. Va., Nov. 19, 1887.

The plan is an old one, friend K., and is, perhaps, about as reliable as any known; but everybody, sooner or later, votes it too much trouble. We sometimes make use of the plan when every other fails. Very likely it would answer for introducing virgin queens, the amount of labor and time occupied being the only objection.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 15, 1887.

If any man will do his will, he shall know of the doctrine, whether it be of God, or whether I speak of myself.—JOHN 7:17.

We have lots of copy in the copy-drawer, so do not be disappointed if you do not see your communication appear in the "next issue."

WELL, friends, this number finishes the year of 1887. We wish you a merry Christmas and a happy New Year, even should you decide not to remain with us during that year.

BUCKWHEAT CAKES AND HONEY.

HAS any one tried buckwheat cakes made out of the new Japanese buckwheat? If so, report and tell us whether they taste any better than when made from the common buckwheat. Question.—Candidly, which do you think is better—cakes and honey, or cakes and rich maple molasses? We rather prefer the latter.

THE OHIO STATE BEE-KEEPERS' ASSOCIATION.

By reference to another column, under the head of "Convention Notices," the reader will observe that the Ohio State Bee-keepers' Association will meet at Columbus, the second Tuesday and Wednesday of the month, Jan. 10th and 11th. The convention will be held in the United States Hotel, corner of High and Town Sts. Rates are \$1.50 each, double, or \$2.00 per day single. The matter of securing reduced rates of travel is now in the hands of a committee, further announcements of which will be made in our next issue, at which time, also, a full programme will be given. Every effort is being put forth to make this a success, and a good rousing meeting is expected. Every loyal bee-man who can should be present. The local conventions of the State which have not already appointed a representative, should see to the matter at once.

LANTERN SLIDES ON BEES.

We are indebted to Alfred Watkins, Imperial Mills, Herford, Eng., for samples of some of his lantern slides on bees. Among them are microphotographs. They are all exceedingly fine, and are well adapted to accompany lectures on the subject

of bees. That you may know what friend Watkins is able to do, we will say that he has actually photographed, by the instantaneous process, a bee on the wing—some about to alight, and some just flying from a head of clover. Of all the engravings of bees on the wing, we never saw one that was true to life. We shall place the slide in the hands of our engravers, and see if we can not get a correct picture. There are also other specimens which we hope to illustrate. The price is one shilling each, and can be obtained of the address above.

MY TWO UNFINISHED STORIES.

THE friends will remember that I promised, in our last issue, to give the conclusion of my trip to Chicago; but matters of so much interest came up while in Michigan that I felt I must tell you about them while they were fresh in my mind; and in the present issue I have not more than half finished that story, so I see no help for it but to finish both in our issues for January. As we now send the journal right along, however, until we are told to stop it, most of you, at least, will get the remainder of both articles.

CEREALINE GEMS GOOD WITH HONEY.

WE have made a discovery at our house; namely, that the most beautiful gems can be made by using cerealine with the flour, making the gems in the usual way. They are as light as a sponge, and so soft to the touch and palate that one thinks he is eating delicate sponge cake; and when they are eaten with a nice quality of honey it makes one of the daintiest dishes on a frosty cold morning. I think you want a pitcher of milk near by, to make the repast complete. You can get the cerealine, with directions, at almost any grocery. It costs here in Medina, 18 cents for a two-pound package.

THE NEW LETTUCE I FOUND AT GRAND RAPIDS.

WHILE I write, a celery-glass full of the above lettuce stands on the table before me. A single stalk is over 15 inches tall, and it fills the holder so as to spread out and droop over on all sides. The very sight of it is tempting, and the taste makes me think of summer showers in June. We will try to give a picture of it in our next issue. Mr. Eugene Davis, lock box 34, Grand Rapids, Mich., is the originator and proprietor of this new and handsome vegetable production. You can buy plenty of the lettuce of him by the basket or by the barrel. Twenty cents a pound is what he charged me. It will retail readily, before the holidays at least, for 40 cts. a pound. He will sell you the lettuce, but you cannot get the seed, unless you are more lucky than I have been; and even if you had it, you would probably need his greenhouses and skill to grow it in winter time.

FRIEND HUTCHINSON'S NEW BEE-JOURNAL.

AS will be noticed by an advertisement on another page, this journal is to make its appearance in January. I have often thought it would be an excellent thing for some one who is competent, to make a review of the great mass of information that is constantly appearing in our bee-journals; and one or more of the various journals have at different times undertaken it, but have finally given it up. It not only requires somebody with great knowledge and experience, but some one who can patiently go through all the journals and sift the wheat from the chaff. Now, in view of the fact that what we now consider to be wheat

may soon transpire to be chaff, and *vice versa*, the task is no easy one. Of course, a real live bee-man, and one who is an actual honey-producer, is needed for this work; and just now I do not know of anybody better calculated to do the work than is friend Hutchinson; and I believe, also, he is a man who is not apt to get weary in well doing. We shall see.

NEGLECTING TO RENEW.

IN both of my recent trips I met many old friends who said they had formerly taken GLEANINGS, and never intended to have it stop; but they kept putting off and putting off writing a letter to send for it, and finally it was neglected altogether, contrary to their intentions and wishes. The sight of me, however, revived a disposition to renew acquaintance, and nothing more was necessary than to just push a dollar toward me. I always get hold of such dollars, you may be sure. Some time ago we proposed remedying this matter by having an agent at each postoffice, to look up those who wanted the journal to continue, but our efforts have resulted in only about 40 local agents. Last year, Ernest suggested another remedy, which was, to keep the journal going until we were desired to stop it. I suppose this not only covers the trouble in question, but it sometimes results in sending the journal to those who did not mean to have it. They kept neglecting to write a letter telling us to stop it; and finally, as one issue after another came, they decided to let it come. This puts the shoe on the other foot, you see; but as the recipient almost always decides that he has had his money's worth, if not in bees in something else, we conclude it is the lesser of two evils; therefore if you desire it to keep coming, just attend to your other matters and don't bother about GLEANINGS. If you prefer to have it stopped, however, just scratch on a postal, "Stop it," and I assure you it will be done, without adding a single word more.

"A MODERN BEE-FARM."

THE above is the title of a new English work by S. Simmins, Rottingdean, Brighton, England. The work contains 200 large pages, beautifully printed on a fine quality of paper. In plan it is excellent, each subject and its sub-head being distinctly separated by strong black head-lines, so that a novice can easily find such information as he may need. Mr. Simmins is not only the author of "A Modern Bee-Farm," but he has one practically in successful operation, as one of the excellent photographs in the work testifies. Among other subjects of British apiculture we find The Non-swarming System, The Production of Honey, House-apiaries, The Production of Wax, and the Non-use of Foundation, etc. With few exceptions, the writer says in his preface, the instructions are drawn from his own experience of 20 years. As one opens the book and turns the fly-leaf, a pleasant surprise greets him. An actual photograph pasted on the leaf (not an engraving) represents Mr. Simmins, his good wife, and a family of five children. The group, from the baby to its papa who is holding it, is a very interesting one, particularly to us. We feel sure Mr. S. is a home man, and it is this domestic feature that makes us feel a nearer kinship to himself and his. We can not describe the picture further; but if you wish to see it you can obtain the work of the author as above for 7s. 6d., postpaid (or \$1.80). A cheaper edition can be had, 3 s. 6 d. (85 cts.). The

latter, however, is bound in flexible cloth binding, and is not accompanied with the photographs.

GLASSED AND UNGLASSED SECTIONS.

See what one of the commission men say about these in the Honey Column. You will be interested in reading the whole of this department.

SPECIAL NOTICES.

We will pay, until further notice, 10 cts. each for February 1st and March 1st issues of GLEANINGS, this year. Be sure to send the right ones.

OUR SEED CATALOGUE.

Our abbreviated list of seeds will be put in the January issue, and our vegetable-seed catalogue complete, somewhat later. We say this in answer to several inquiries.

DISCOUNTS FOR DECEMBER.

During the month of December we will allow 5 % discount from all articles in our catalogue. This is an inducement for you to order your next year's supply now, and not wait till spring, when we are crowded with orders. Remember, the discount grows less the longer you wait. January discount will be 4 %; Feb., 3 %. After Feb., no discount.

PERFORATED ZINC.

We are making new dies and punches for our zinc-perforating machine, with which we hope to make more perfect perforations than heretofore. In our Jan. 1st catalogue we have also reduced the price to \$1.20 per sheet, 28 x 96; \$1.20 for 10 unbound honey-boards, 14 x 19½, for Simplicity hive. Discounts remain the same as before.

AN EXTRA-FINE QUALITY OF EXTRACTED HONEY AT 10 CTS. PER LB.

We have just purchased over a ton of a very fine quality of clover and basswood honey, put up in our 60-lb. square cans, 2 in a box. We bought this at a price whereby we are able to offer it in case lots at 10 cts. per lb. "Gilt-edge" basswood or clover honey, at 1 ct. per lb. more. Samples mailed free on application.

JAPANESE BUCKWHEAT FOR SEED.

I suppose the demand and supply will govern the price for the coming year. We have started it as follows: One bushel, \$4.00; ¼ bush., \$2.20; one peck, \$1.20; ¼ peck, 75 cts.; 1 lb., 16 cts.; ¼ lb., 5 cts. If sent by mail, add 18 cts. per lb., or 5 cts. for ¼ lb., for postage. We wish you who have raised it would help in establishing a price. Tell us how much you have, how much you will sell for, and then we can decide whether the price must be raised or lowered. I was a little afraid last winter that I was urging too many to give it a trial; but now it transpires that the ones who bought most of it are the lucky ones.

PRICES ON A B C OF BEE CULTURE.

We have decided on the following schedule of prices on the A B C of Bee Culture, which takes effect Jan. 1st, 1888, and will be strictly adhered to. These prices are printed in our Jan. 1st edition of the catalogue now in the press:

	BY MAIL.		BY EXP. OR FREIGHT.	
	Cloth.	Pap'r.	Cloth.	Paper.
One A B C of Bee Culture	\$1.25	\$1.00	\$1.10	88
Two "	2.25	1.75	1.95	1.51
Three "	3.25	2.50	2.80	2.14
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CONVENTION NOTICES.

The Nebraska bee-keepers will meet in Lincoln, Neb., on Jan. 11, 1888, for their annual meeting.
Humbolt, Neb., Nov. 11, 1887. HENRY PATTERSON, Sec.

The annual convention of the Vermont Bee-keepers' Association is to be held at the VanNess House, Burlington, Vt., January 18 and 19, 1888. Programmes will be sent later.
Shoreham, Vt. R. H. HOLMES, Sec'y.

The State Bee-keepers' Association of New York will meet at Utica, Jan. 17, 18, and 19, 1888. Full particulars later.
Pine Plains, N. Y. G. H. KNICKERBOCKER, Sec'y.

The Susquehanna County Bee-keepers' Association will meet at New Milford, on Jan. 7, 1888. Subjects for discussion: The best way to prevent swarming; also, is it advisable to Italianize? All bee-keepers are cordially invited.
H. M. SEELEY, Sec., Harford, Pa.

The Ohio State Bee-keepers' Association will hold its next session Jan. 10th and 11th, Tuesday and Wednesday, at Columbus, in the United States Hotel, corner High and Town Sts. Rates are \$1.50 each, double, or \$2.00 per day single. Let us have a rousing and interesting meeting. We have a Langstroth, a Miller, a Tinker, a Root, a Boardman, a Muth, and scores of others who have a national reputation. There will be an interesting programme arranged, and the convention will be held but two days, so it will be necessary to get to Columbus the evening before, so that we may open up the first day with a good attendance, and get the full benefit of the two days.
Bluffton, O. FRANK A. EATON, Sec'y.

The Nebraska State Bee-keepers' Association will hold its next meeting at Lincoln, Neb., on the 11th day of January, 1888.

The following topics will be discussed:
How does bee-keeping pay, compared with other pursuits?
How can beginners be so taught as not to ruin the market for those more experienced?

Superiority and excellency in the production of honey, and marketing of same, by Mrs. J. N. Hester, of Columbus, Neb.
What are the most essential points in locating an apiary?
Bee-pasturage, and the diseases of bees; by E. Kretschmer, Coburg, Iowa.

Spring management of bees; by E. M. Hayhurst, Kansas City.
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There will be a question-box. R. R. RYAN, Sec'y.
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